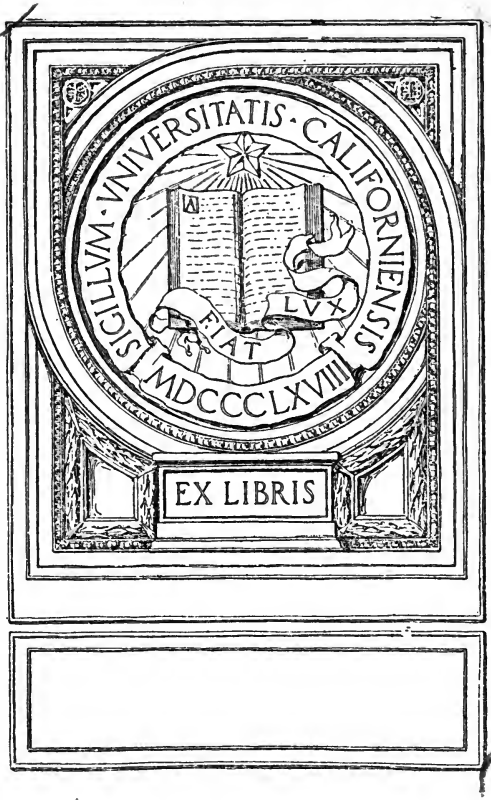
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CONDUCT OF THE UNDERSTANDING
IN
PHILOSOPHY AND PHYSIOLOGY

Yours very truly
Dimitry Onofrey.

[*Frontispiece*

Conduct of the Understanding

in

Philosophy and Physiology

AND

HOW THE ABUSE OF NATURE AFFECTS DEVELOPMENT OF MIND

BY

TIMOTHY O'MAHONEY

Author of *Irish Ideals and Irish Culture; Philosophy of Brevity; Mathematics in Medical Studies*

WITH AN INTRODUCTION BY

L. G. TAYLOR, M.A. (OXON).

Honours-Man.

LONDON:

GEORGE ROUTLEDGE & SONS, LTD.,

NEW YORK: E. P. DUTTON & CO.

THIS WORK IS INSCRIBED TO
MY DEAR MOTHER AND
FATHER, IN RECOGNITION OF THEIR
DEVOTED LOVE AND WEALTH OF KINDNESS
SHOWN BY THEM TO THEIR SON, THE AUTHOR.

INTRODUCTION

BY

L. G. TAYLOR, M.A. (OXON).

OF introduction in its literal sense, no work, I am convinced, stands less in need than this one in which I am privileged to write these few words. Introduction can, however, bear a slightly different meaning, and in that sense of preparation—just as the oratorio has its overture and the choicest banquet its *hors d'oeuvre*—so even in a work of this kind there is room for a few introductory remarks.

The work is a synopsis of many sciences usually treated separately. The confidence with which it is offered to the public is grounded on the conviction that culture or science should be regarded as a whole and studied as such. Such a work as this is a long-needed counter-blast to the prevalent cry for "specialisation." "Let us get back to old standards," says the author in effect; "let the nation see to it that every man has the opportunity for all-round improvement—not for the knowledge alone that will bring him money!"

To every man that has spent life and talents in pursuit of money comes, sooner or later, a time when remorse for lost opportunities for self-improvement seizes on him as relentlessly as ever did the Eagle of Zeus on Prometheus. Opportunity for self-culture exists, too; "*Qui s'excuse s'accuse*"—he who excuses himself for lack of culture in these days is self-condemned.

The student of humanity, no less than the student of

medicine, will find interest and instruction, counsel and guidance in this work. It is precisely in the universal appeal that it makes to common sense for common good that the work before us claims our appreciation and our earnest attention. If the reader will study Chapters III. and IV. he will agree that for these chapters especially the author merits all the thanks we can give. In these chapters his statement of the importance of the mind's influence in the most intimate relations of the sexes, particularly in married life, though it may startle some, is so earnestly and clearly put that even a superficial reading is enough to convince us at once of the soundness of its deductions and the purity of the motive that actuates the author. Throughout the work his courage in combating present-day convention (especially if based on false modesty), his singleness of aim and devotion to duty, his disinterested championing of the cause of truth against bigotry—all these qualities, combined with an extensive knowledge of many subjects hitherto not found capable of treatment in a single volume—such are some of the characteristics of the work I have found such pleasure in revising.

There are many other points from which the work may be viewed, but after all an Introduction is not a critique. It is enough to say, as a closing word, that great and various as are the topics treated in this work, with temptation to digression lying in wait all along the route, the author has kept steadily in view his original aim, which was to produce a work which, avoiding technicalities, should be authoritative in its statements, accurate in its deductions and popular in its appeal.

L. G. Taylor, M.A. Oxon.

PREFACE

THE substance of the following subjects on "Conduct of the Understanding in Philosophy and Physiology, and How the Abuse of Nature affects the Development of Mind," occupied the Author's consideration and reflection for many years He learned when a College student the supreme interest and pleasure of the method of study of science, the discipline of the mind and the art of learning and hence his desire that scholars should direct their attention to these high themes.

Many students are engrossed by the distractions of modern active life, with the result that their inefficiency in various branches of knowledge only become fatal to the health of their minds. Therefore the Author has in this book emphasised the deep importance of exercising power and discipline of mind, and has given some needed rules on how to develop habits of attention and the art of learning.

It would be unprofitable, and even frivolous, on the Author's part were he to overlook the practical application of these rules which he considers as best adapted for the most zealous prosecution of knowledge in medicine, anatomy and kindred sciences.

All who agree that Science and Philosophy united with a commercial education are of the utmost importance in actual duties and responsibilities of life are invited to study the following themes that tend to conduct the mind to its high dignity.

T. O'MAHONEY.

CONTENTS

"A NATION'S DUTY IS TO TRAIN THE MIND OF HER SONS."

Owing to the condensed form in which these essays must be presented, some misunderstanding may arise as to the writer's purpose in commenting on education in general. In order to avoid that, special care will be taken. We will leave the political and the musical departments of our subjects to those who are specially qualified to deal with them. Let us for a moment study the theme of education from the high standard of utility and ethics, and invite our reader's attention to a really wise educational system in science and art.

No cultured man ought to quarrel with any effort likely to improve the mind. The author is compelled, owing to the need of higher education, to point out the weaknesses of our own system, otherwise Germany will gain a power among nations of the world. The author speaks not of such "kultur" as is absolutely intolerable; which cannot be mentioned without bringing a blush of shame to the faces of good cultured Germans; but

of their system of education, which is known in the most distant parts of the world.

It is true that our education of boys and girls is not calculated to be of much use to them in their profession in after life. The history of the nations has shown that the main or chief object of education is not so much to fill the mind with a mere smattering of subjects as to cultivate the faculties. This is the great question, which must be mastered and thoroughly understood. We must change the system of our education if we intend to improve the culture of our future generation. Through every age, and in every country, particularly in Ireland, human ideas have been labouring to produce a sound system of education.

Modern educational systems have been mere theorising, the month of August, 1914, came and proved the inadequacy of such theorising. If we have to create a system of education, we must create such as will accomplish our object.

There are three fundamental points in a sound educational system, namely :—

1. The moral development.

2. The physical development.
3. The mental development.

The accomplishment of these three great necessary human requisites is imperative. Why? Have our children the observing faculties, comparison, judgment, and healthy moral sentiments?

They have not, in my opinion, and, I may add, that many men and women have not sufficient knowledge of their mother tongue to convey precisely what they really desire to say.

We have been trying to educate by *chance*, guesswork, and language, without rules.

For example: We guess to write correctly; we have arithmetic without tables; religion without the knowledge of God and we act without judgment in application of science. Truth to tell, when a nation is perplexed and confused in regard to educational systems, discipline and manners are naturally gone, and naturally the industrial ranks also have got out of control. For without education there is no discipline, and without discipline we lose all self-control.

The employers, political leaders, strike

leaders, and even the parents, cannot exercise the needed control. There is little respect for authority, little love for labour and study. Why ? Because they have not been taught their importance. There is no ideal, no aim, no ambition, the centre of the gravity, as it were, of the race has been shifted because their minds have not been trained. As this branch of knowledge has been already handled critically and severely by able men, we may pass it over.

The author believes that a nation cannot possibly act on the laws of moral and disciplined characters without christian teachers. It is a consideration, indeed, which well repays a little meditation and analysis. When we review the results of our systems of education, we are forced to admit the progress made is not encouraging.

How many children soon forget most of what they had learned at school because the subjects generally taught are outside their mental capacity. The lack of application of knowledge in our Engineering Workshops, Offices, and Schools, especially in regard to

the arts and crafts, shows the evidence of a want of thoroughness.

After many years of study, and having made a careful comparison between those that have been educated in this country, and those who have been educated in other parts of the continent, the author is sorry to say that the average person in England who is supposed to know, knows but little of those great national literatures in which are recorded the brightest thoughts, illuminating the paths along which human beings have moved in their onward progress during the past centuries. Boys enter into commercial life too early and too ill prepared, and the result is that the average commercial man is not very successful in clerical employment.

English school training has not made the people what they are in business. The restless energy and boundless enterprise of our people have made this nation the world's market.

It should now be the work of our Educational Authorities to maintain and develop the qualities on which the greatness of any nation must depend.

In fine, the dignity of a nation must rest on its mental development, not on its riches, or its pleasures, but on *Thought, Reason* and *Work*.

ADVICE TO STUDENTS.

THE student who relishes and enjoys the pleasures of a retired and a contemplative life, exercises every moral and intellectual quality that can adorn and exalt his whole manhood. One of the high privileges that a student can possess is that of a retired life. There cannot be a greater calamity to a studious mind than passions for too much ephemeral pleasure. The strongest symptoms of a well-constituted mind become weak in the pursuits of empty pleasures. On looking back upon student days the writer often thinks of his Professor's kind instincts, directing his fearless genius in proper channels. He often told us that one may have a strong mind, a sound judgment, or a vivid imagination, or a wide reach of thought, but uncontrolled passions and uncontrolled will may govern the whole nature with foolish notions. Need we say here, one can never command his attention with strictness and regularity if his appetites and passions are ungoverned. Let it be remembered that we cannot copy

greatness, patience, and diligence unless our passions are under control.

Have we not seen the learned world slumbering, contented with infant science, and with but little knowledge of language? To answer this we must request the reader to reflect that knowledge was confined to a few in most nations and tribes that covered vast tracts of territory yet possessed very little real culture. Now we cannot persuade ourselves that their nature did not follow the progress of man's ingenuity, watching, as it were, the pre-ordained event in the annals of creation. Their general fitness for improvement was in accord with the harmony of nature. Their industry and pursuits did not permit of their handing on their well-intended ideas. Their very sciences procured the necessary information to meet the age, and showed the correspondence between the progress of science and the cultivation of the mind.

We need hardly remind ourselves of the multitudes of students in this age who have frittered away their intellects in doing nothing; then, think of the half-educated class who imitate the detestable actions of the admired idlers, and then observe the

immoral atmosphere in practical life which unfits the mind for anything valuable ! We shall find it then becomes our duty to pursue the very study which God has created, and inspired us to carry out.

This toilsome yet fruitful research in medical education has brought an immense store of exalted views to real students. The moderns begin their studies, unfortunately, with no very definite purpose, and with very little courage for industry. It is perfectly clear that he who is most industrious is most likely to be the means of the rise and development of new science.

We do not intend to lead our readers through a brief history of ethnography in ages past, nor to ascertain the vast store of practical ethnographic knowledge ; nor to consider a treatise upon the philosophy of language, nor to acquaint them with a minute and complicated analysis of languages ; nor to encourage the study of the mass of incongruous materials from all languages ; nor to understand the curious information regarding the languages, and literature of most Asiatic nations ; but to demonstrate simply by

similarity of words the unity of our mother tongue in branches of science, the well-ordered and beautiful structure of sentences which we should know, and the means by which speech should be communicated and delivered.

The investigation of the science of the human understanding (involved in numerous and complicated questions by the contradictory statements of writers) is intended to obviate excess of study. Physicians are said to be of studious habits. They must read industriously in order to observe and to reflect, to converse and prescribe wisely. They must cultivate mental and physical habits in order to gain strength and power to endure, to overcome the fatigues and exposures which belong to the profession. Therefore, as already intimated, the brain, the lungs, the stomach, and the muscles must not be injured by immoderate or ill-regulated exertions. Their minds must be nourished by literary and well-regulated studies. The cures of such ailments and the necessity for prudence in the cultivation of the human understanding, are the object and research in the chapter of this work.

Quickness of understanding is the result of a vigorous and resolute activity of the mind. What constitutes the man of reflection, understanding and reason ? It is the laborious exercise of higher faculty. But the man of profitless leisure, of empty pride, of manifest indolence and ungoverned passions, virtually renounces reason, and yet presents himself for our admiration. There is an unnatural value set upon anything brought to human knowledge through shallowness. It is not the giants of historical and philosophical knowledge that can claim the discovery of scientific and literary wealth ; it is the laborious student and the patient and plodding brain that has discovered the historical and scientific wealth of nations.

An extensive acquaintance with physiology and comparative anatomy is in harmony with every branch of natural science. It is not easy, indeed, to reveal any of the mysteries of anatomical knowledge. The esoteric philosophy directly useful and necessary for application in medical research begets a tendency to undue haste which often leads to comparative neglect of important truths.

This extraordinary deficiency in the luminaries of anatomical science produces ill-effects upon medical education.

The education of the physicians of this country is imperfect and faulty, and does injustice to the ranks of such a learned profession. The available professional information in some universities is not yet practicable. The average student is totally unqualified for any medical, literary and scientific pursuit, and secondly, the students are permitted to graduate too easily to be made doctors. The admission into the schools of medicine should be attainable only through all-round fitness. Such students should be found qualified in languages, general science, and mathematics, and should have some acquaintance with philosophy. The elegant and ennobling studies of poetry, eloquence and history should not be neglected in a physician's education.

The study of anatomy must immortalise your love of the science in general. A man cannot leave a more noble monument behind him than a manifest esteem and attachment for knowledge and excellent qualities in his

profession. Men of medical science or any of the learned should not be too anxious to acquire reputation. Such peculiar fancies fill the mind with useless and idle absurdities.

If we study the lives of some Mathematicians, Astronomers, Geologists and Anatomists, we shall find them too desirous to step forward ; too ready to disclose their peculiar fancies and dreams ; too eager to contribute to that chaos of writings at present in the world ; too willing to make known even their whimsical and dangerous opinions. Such extravagant follies are the depository of all the errors. They are disgraceful and impious notions, and ought to be distressing to rational beings. In this age we are in too great a hurry to become scholars, no time is given for our thoughts to bud ; we have no proper estimation of our opinions ; no study is given to the endless torrents of words which clothe our thoughts ; no great zeal and discernment for sharpening the wit and analysing the sciences ; no desire for knowledge of character, no adaptability for different spheres of knowledge, and no degrees of understanding.

PHYSIOLOGY OF SEX FUNCTIONS AND HOW THE ABUSE OF ITS NATURE AFFECTS THE DEVELOPMENT OF THE MIND.

I DO not intend to explain the mental phenomena in man, nor the sense in which he surveys the knowledge of the existence and properties of the material world, nor how he first got the impression of his existence and ideas of material objects; nor am I attempting to explain the phenomena of life mechanically in every department of physiology, but only to define more clearly the established laws, and how men become diseased. Man now knows something of the elements of chemistry necessary for the support of life. He has so studied the problem of the origin of things, according to the records of cosmogony, and his decision has been aided by the scientific modern appliances and intellectual developments in the regions of biology and metaphysics that the varied properties and relation of bodies and peculiar principles, means of inquiry, and mental reasoning in each branch of chemical study would form a sound basis

for mental exercise and discipline and improvement of physical conditions. The study of the difference between chemical and mechanical actions, and the immense varieties of forms and appearances in the chemistry of life—namely, Animals, Vegetables, Metals, and other objects, and the knowledge of considerable changes in chemical processes, and of the chemical actions in the manufacture of substances necessary for life and comfort, should mean progress in the moral life of the present age. Yet with all the scope of each of the various spheres of knowledge, we are feeble absolutely and demonstrably in health, in animal passions, in intelligence and generally.

When the human system with its tissues, fluids, functions, faculties and mental energies constitutes an imperfect self-working machine, what state do we expect to find the mentality, and the health of the offspring, to be in? Once the natural state of the mind and body becomes weak, morbid and diseased through wicked sexual lust of self-gratification, the mentality and proper development of all the organs of the body are seriously disturbed.

This sex passion has so affected the minds of the people that mental exercise is now injurious to the developments of the moral faculties, and to the intellectual powers.

How fearful it is to contemplate the deplorable effects that early sexual inclinations and transgressing the law in self-indulgence have upon offspring. This degrading state of ill humanity destroys logically all the privileged basis classed as blue blood or noble families.

My contention is that blue-blood families are not cultured and refined ones ; the blue-blood aristocracy and class people have degenerated. To-day many of these so-called noble families die illiterate, drunken, paralytic and insane, and many that are living are foolish, fanatical, cowardly, slovenly, eccentric and ignorant. This present ill condition of the class caste in Europe is undoubtedly brought about through excesses of debaucheries and ill government of their carnal passions.

The commoners are placed almost in the same category, and the deplorable results of this we are now experiencing in the present

trying times. The average commoner is most illiterate, and the records of the recent medical boards bear testimony to the deplorable sexual state of mankind. Post bills have been circulated through the Empire warning people who are suffering from these deplorable diseases to report themselves immediately to the Medical Authorities. Therefore, parents of highly-gifted children should be awake to the lamentable degree of ignorance which now prevails with regard to the hygienic laws of sex function. There are some physiological facts in sex hygiene that parents never explain to their offspring. Common observation has pointed out that parents who desire to see bodily health, sound morals, and the real growth and cultivation of the minds of their offspring, should discountenance the band-box or the stork story to their offspring. These fairy tales are most dangerous, and ought to be considered disgraceful, and they leave children totally ignorant of the curious and wonderful minds of the male and female. To suppress the truth regarding the origin of their children is extremely unwise. We must give our

children the sex knowledge which they ought to possess.

Public attention is now awakened to the importance of educating children in the knowledge of the danger that is in sexual ailments, because opinions prevail extensively respecting the importance of developing and cultivating the mental powers of children regarding sexual matters. Yet opinions prevail that it is a difficult task for parents to instruct their offspring wisely in natural sexual knowledge.

Marcus Aurelius said : " Vir sis et castus," and another scholar, Dr. Denslow Lewis, said in 1906 : " I want the young people throughout our country to know the truth. They must know hygiene and must have a conception of venereal infection." Also Dr. S. A. Knopf says : " I believe in educating the people at large by lectures and pamphlets and instructing school children and adolescents concerning the nature of these diseases." It seems not a very easy thing to instruct one's offspring in physiology of sexual matters. And yet, to be ignorant of this important subject is disastrous to the

future welfare of the offspring. Every young lady should study her choicest man.

It is not only his celebrated beauty, his complexion, his grown air of authority, his half trained culture, and his figure that should count, but rather those human faculties that preside over his natural passions. Because neglect and bad discipline, in trying to govern the animal passions without the proper use of human knowledge and a pure mind, means a loss of all distinction between birth and obscurity, nobility and baseness, understanding and ignorance.

The mind that takes a pleasure in sex passion and is governed by it, becomes restless, inattentive, talkative and ungovernable and the countenance becomes a picture at once dissipated and perplexed. Does it not evidently appear that the favourite "maxims" so-called of debauchery mean seducing young girls to their ruin and dishonour, and young boys to inhumane dispositions. It is difficult to hide sexual disease that ruins the activity of the brain, that deranges the physiological functions of the whole organism, that is disastrous to the natural

function of mothers, that decreases the vitality and buoyancy in childbirth, and often induces a morbid state of the mind. Study many mothers after childbirth, and the growth of their offspring, and you will find in many cases that their nervous tissues are diseased, and that chronic physical derangements arise chiefly through the sexual sins of their husbands. A careful inquiry into the ill effects of mental and physical life of man is undoubtedly disheartening. The maintenance of life becomes exhausting, and the issue is a speedy death. Boys and girls often transgress this law of nature, and the result is that their functions of mind and body are scarcely healthy and cannot be properly developed. Venereal disease, self-indulgence, and pleasure of mind in base sexual thoughts are virtually incurable diseases.

Have you ever asked the question what is the cause of innumerable sexual symptoms in the people of the present age; such as sick headache, sleeplessness, melancholy state of mind, loss of hair, disordered nerve forces, tuberculosis, skin eruptions, defective sight,

haggard appearance, etc. ? I have not space here to explain the hidden results of transgressing the law of one's animal passion. I should like to advise my readers who desire to acquaint themselves with a knowledge of *syphilis insontium* and how to safeguard the honour of any innocent girl, and how to acquire knowledge of a young man's physiological functions, and sex-injuries to health before marriage, to read my novel, *Why a Mother should tell her Child.*

Sex disease mars all progress in any intellectual pursuits ; it impedes and perplexes all mental application. The mind has limited faculties, and it is open to error, perplexity, and darkness in many matters of nature. It can lose and it can fail to acquire human wisdom rapidly when the propensities of human beings are diseased with sexual passions, and it can perceive and investigate the facts of the fundamental law of nature, almost beyond the reach of human faculties, only when the body is healthy and the mind is free from this deplorable disease. Man is nothing if he have not a mind to receive impressions and ideas, because the most

exquisite of our bodily senses are solely dependent for their cultivation upon impressions from external things. The peculiar phenomena of mind are extinguished and retarded, and the faculties diminished in every activity of the mind's functions, and the mind is unequal to the process of logic once the nature of the body is infected with unlawful cohabitation and even flirting and passionate kissing with those of opposite sex whose bodily constitution is polluted by the evil of carnal pleasures. I have given a more formal and positive enunciation of the chief propositions in this inquiry of sexual knowledge, etc., in my novel, as above stated.

THE INFLUENCE OF THE MIND—THE ORIGIN OF LIFE.

THE title of this chapter may require some explanation The author intends to be brief and yet to give an accurate indication of its scope. The Science of Psychology may be read in many popular text books, and its laws are common knowledge to the man in the street, but we shall omit one particular branch of it—namely, Theology, as the author feels that he cannot deal intelligently with its principles as applied to the modern universal law of our existence. This being so, he will not try to explain the phenomena of the soul, but shall leave its mysteries to the more thoughtful and cultured gentleman whose privilege it is to study it. Prevalent theories with regard to the origin of life in man have been questioned times almost beyond count.

The first question that naturally arises in the minds of those that certainly admit existence is: When? Where? How? of the origin of life in man and the world.

The second question is: "How complete is the original production of things from nothingness?"

The third question is that of development.

The fallacy underlying all these questions is sufficiently obvious. When an argument is stated in logical form, the precise steps of the argument must reach something like verification of a hypothesis which the mind began to form before the resulting conclusion. Now, has the materialist any actual idea of his theme in his frankly materialistic attempts of inquiry into the origin of facts by means of the process of evolution? Hence the difficulty and obscurity of his philosophy. It follows that if, in studying evolution, we meet with *time* or *when*, we come ultimately to development or *Where*, and finally *Change* or *How*. Evolution does not contribute to the end in view either constructively or destructively, because its progress depends upon intelligence. However indefinite the limits of intelligence, it is a necessary condition of progress. Now intelligence is nothing more than the *mind endeavouring to order all things necessary for the preservation of the creation.*

This continued growth of the mind goes on unceasingly, and strictly within the province of the origin of life. Scholastic philosophy has two truths, one which sees the origin of life in the process of actual thinking, while the second asserts that the seed and egg are essential in the creation of life ; for example, sensations, ideas and thoughts cannot exist independently of man, because the senses through which we are said to perceive them are the properties of the fruit in the seed and egg of life. It will be seen that life in man has its origin exclusively through intellectual feelings from the innermost depths of human beings. This explains, at the same time, the fact of a feeling of human necessity which accompanies the impression of the male and female's minds during menstruation. This consideration naturally brings the student to the study of the variability of species. In my new work, entitled *The Origin of Life and Language,* I will try to give a complete criticism of Haeckel's theories in his second volume of *The Evolution of Man.* I shall do so as indirect demonstration of the truth and evidence of my theory that life in man is

entirely due to the chemistry of nature in the seed and egg through the minds of the male and female.

I must leave this deeply important subject and hasten to offer a very few remarks on the topic of the Origin of Life, which I am now engaged in compiling. I have been speaking to some of the most learned persons in this country about the mind and the seed and egg in the origin of life. Vigorous minds, the masterly skill, and great talents have proved that this gigantic theory of the origin of life is almost impossible to understand. Obviously, however, it is not very safe for me to speak of my inquiries into the four elements that build the world—namely, Earth, Air, Fire and Water, and to explain the first beginning of matter, of the cosmic nebula, and of the phenomena of life in the subject-matter of Palæontology and Biology.

The minds' currents that propel the seed and egg in nature of the male and female are of supreme importance in inquiries into the origin of life, and they are most firmly established and unquestionable, as the processes of the mind in receiving and dealing with

ideas greatly influence the physical basis of life in the nerve, brain, bone, muscle and tissue which go to build a living structure. The living seed in man gets its organic power from the current flash of the mind only when the mind receives the *idea* similar to that of electric current. This flash current has a great power, a power of intelligence, and this in itself is life. (Just as there is life in electricity to drive engines.) That separates man from the brute. This flash strikes the nerve which feeds the seed and egg and keeps the power in the current until development breaks off its limits. This is done when the seed passes into the egg of the sex. Hence the body covers the mind with all its transcendent genius, as the ivy covers ancient monuments, often concealing the architectural beauty. Let me give one quotation from the second volume of Professor Sedwick, F.R.S., of the Royal College of Science, London. " The mental qualities which are so characteristic of the Genus Homo has led many naturalists to create a special family (Anthropidea) or even order (Bimana) for its reception. But in this work we are concerned with man from

the standpoint of morphology, and in assigning him his position in the system we can only take into consideration the facts of his bodily structure, as we have done in the case of other animals. If physical characters were taken into account in zoology, the whole of classification would be thrown into confusion; and in the case of man, how should we define the position to be assigned to him? For what a piece of work is a man! How noble in reason! How infinite in faculty, in form and moving, how express and admirable! In action, how like an angel; in apprehension, how like a God!"

Therefore, sex knowledge I have long wished should become a national duty. I have always considered that young girls and boys should be instructed in sexual matters, and that they should be earnestly exhorted how to regard with awe and respect their rapid physiological changes, and hate all illicit indulgence of all sexual passions. Parents themselves are to blame if their offspring welcome curiosity regarding their sex impulse which causes annoyance and worry to their minds. The child of 14 years of age becomes

bewildered at the dawn of her sexual instinct, and, unfortunately, in many cases, she perishes in trying to combat these unruly passions. She becomes, as she grows older, inflamed in feelings of too sexual ideas, and her mind consumes and welcomes the most indecent looks and conversations. "*Melius est aliquid nescire secure quam cum periculo discere.*" I could enumerate I don't know how many who love, and are too ready to understand, the sexual curiosity through the channel of substantial self-wrong. This evil-minded knowledge often unfits man, both physically and mentally, for becoming his ideal self in life's vocation.

I have not had an opportunity to read with attention the Latin work of St. Thomas Aquinas where he gives the world a further hope of life hereafter even if life can be produced from matter. This illustrious saint has accompanied me in all my duties.

What ignorance, what abuse one can be guilty of even in casting eyes of passion on the other sex ! I hope parents will see that their children shall learn that the mind, which is the origin of life, can be destroyed by sexual passion or transgression of nature's law.

THE POWER OF MIND AND BRAIN.

THE human brain and mind are studies worthy of our regard, indeed, worthy of our inquiries and admiration ; therefore to write a good treatise on this branch of our subject would require a man's whole life, though he were endowed with great wisdom. So numerous are their mysteries that man is scarcely capable of collecting and forming them into a whole in a manner worthy of the subject.

What wonderful powers man possesses when viewed with the eye of wisdom ! Yet wisdom can present us with no sense of the magnificence of the extent of man's intellectual power.

This mysterious power of man has given light to all nations in all ages. It forms man's supreme happiness amidst the contagion of ages and climates in all nations.

Medical science has been ever held in great esteem by all races, and, as time comes on, it will be esteemed yet more. Medical knowledge is conveyed in many languages, which must be studied in order to obtain a complete

mastery of the science. As the knowledge of these secrets depends primarily on a healthy and vigorous intellectual growth of the human mind, so the physical development of the organs and functions of the body should not be neglected. How can any student use right reason and be able to frame his thoughts to the best advantage if the body is feeble and imperfectly developed? Knowledge is natural and man must be natural for the right forming of mental images. All men are endowed by nature with a power of memory and gift of perception which they ought to bring to bear on their studies, because the boundless energy in thought and action, in quickness of apprehension, in richness of culture, in coinage of language and in the wisest lessons of virtue, is the result of the work of the healthy brain. Patience is the chief condition (after wisdom) of success; it is not mere physiological speculations and philosophical pursuits that will penetrate nature's darkest mysteries, nor perfect the ill-defined and shadowy apprehension of scientific discoveries, but the cultured mind in conjunction with a patient brain.

Men are often found to be half ignorant and half wise and part skilled and partly expert. Why? Because the patience necessary in scientific researches develops mental fatigue and exhaustion. The wise philosopher, Fronto, writes: "I think it better to be wholly ignorant and unskilled than half learned and half expert." The lamentable degree of ignorance which now prevails with regard to the organs of the brain and its predetermined periods of growth and development is probably the cause of the unsatisfactory state of knowledge in subjects suitable for healthy and vigorous intellectual growth. The brain manifests itself powerfully through the medium of healthy organs, because the brain is the main material organ of the mind. Unless the food of the mind be inwardly digested, with muscular effects, and the organs and functions of the body correspondingly developed, the brain becomes impaired and the labour of the mind injures the health.

The brain of the human system has undoubtedly been created among other things for the performance of mental action, just

as the heart has for the circulation of blood, the ear for hearing, the eye for seeing, and the nerves for sensation. The brain is one of the largest organs in the body, and is better protected, and better supplied with blood than any of the other organs. It appears, then, that the brain directs all corporeal energies. It is lamentable to see so many students with feeble minds, trying in vain to gratify their mental appetites by judicious books and attending well regulated literary associations. The question is why do these students fail in the cultivation of the powers of the mind ? The conduct of many parents in this regard towards their children is a matter of great importance, and deserves careful attention with regard to controlling the proper use of the brain. The functions of the brain are not capable of being exercised until the child can supply blood equal to one-thirteenth part of the body's weight. The body of a child must be exercised with entire liberty, wisely regulated with good nourishment, and should have full natural amusement for six or seven years after birth. The distinguished " Hufeland," physician to the King of Prussia,

wrote: "It is necessary that we should not begin to exercise the faculties of the mind too early; it is a great mistake to suppose that we cannot commence their cultivation too soon; we ought not to think of attempting this while nature is wholly occupied with the development of organs, and has need of all the vigour of the system to effect this object. If children are made to study at this age, the most noble part of the vital force for perfecting the organisation is withdrawn and is consumed by the act of thought; from which it necessarily results, that the bodily development is arrested or disturbed, digestion is deranged, the humours deteriorated, and scrofula produced. In fine, the nervous system thus acquires a predominance over all others, which it preserves for the remainder of life, producing innumerable nervous complaints, melancholy, hypochondria, etc."

The learned and judicious Tissot, who brought an immense store of Medical knowledge to bear upon the demonstration of mental cultivation, writes: "The effects of study vary much according to the age of the student; long continued application in in-

fancy destroys life. I have seen young children of mental activity, who manifested a passion for learning far above their age; and I foresaw, with grief, the fate that awaited them. They commenced their career as prodigies, and finished by becoming idiots, or persons of very weak minds. The age of infancy is consecrated to those exercises which fortify and strengthen the body, and not to study, which enfeebles it, and prevents its proper increase and development."

The great Tissot was a learned and practical physician, and has been many times honoured by sovereigns. His great work, *Health of Men of Letters*, has been greatly commended, and had great influence in Europe.

These celebrated opinions show that if the brain be exercised from infancy to seven years, power, energy, and activity in later years diminish. There is nothing in the functions of the brain which is not common to the other organs. Thus the body is matured by the processes of development; the mind displays the phenomena which result from the growth of the brain; intervals of tranquillity prevent

labour of mind and body from exhausting the springs of life.

Sleep and food stimulate the mind and body into mental activity, while the influence of music transports us into scenes and sentiments which often benefit the mental states. Now the brain presides over departments just enumerated and becomes a valuable asset only when the faculties both of the physical and intellectual system function through respectively healthy organs.

If we assume that the brain is not the seat of the mind, then both as regards physical life and the mental influence of our sensations we should be reduced to the state of an animal.

The spontaneous sensation of human want is really the hunger of the mind, but the present age has rather a tendency towards pleasing their passions and affections at any mental cost. Too strong a passion for anything agitates feelings, excites the mind, and endangers the cultivation of the intellectual faculties. We should constantly keep in mind that strongly exciting passions derange the moral as well as the intellectual faculties.

Study the man of excited mind, agitated feelings, or violent emotions; you will find his degrees of understanding, and faculties become dehumanised.

When we reflect upon the danger which an agitated mind has upon the organ of the brain, we shall not wonder if the world relapse into that barbarous ignorance which followed the fall of Ancient Rome.

It is very common for young medical students to develop strong mental excitement from periodical literature, while they are overworking their brain in prosecuting their professional studies. Their strong emotions greatly endanger mental powers, and often awaken the sexual passions. These men are instances of the pernicious predominance of the nervous temperament. Through these powerful and irregular operations of the passions, the brain produces premonitory symptoms of some disease to the accurate observer.

OBSTACLES THAT PREVENT PROGRESS IN THE STUDY OF SCIENCE AND PHILOSOPHY.

It is proposed, in a short treatise on the above studies to offer some suggestions which may possibly be useful to students, not only of the above subjects, but to those in other spheres of study.

To increase knowledge means to increase the labour of the mind, and to combat the habit of indolent careless application. There is a multitude of advantages derived from knowing how to prepare to get knowledge.

It is a serious mistake to think that wisdom is gained without labour, because divided attention produces mental errors and delirious actions. An attentive study of numbers of students, proved that frivolous sophistry and barrenness of mind are often caused through lust, drink and pride.

We may best judge from the remarks given by William Pratt, M.A., M.D., "Secret indulgence, called also onanism, masturbation, self-pollution and self-abuse—this practice does not require any definition. It is shock-

ingly common, and is more especially the besetting sin of early puberty, of young men at school and college." He further states: "This vice has an equally baneful influence over the mind. The imagination becomes polluted, the conceptions become defiled, the will is weakened, the whole intellectual and moral life becomes unclean. In the course of a short time the object of this wretched habit is unwell in his body, and unwell in his mind, without ambition, without energy, and without courage, thoroughly demoralised, fit for nothing."

This debasement is altogether unprofitable; it distorts the mind and endangers man's highest interests both as an intellectual and a moral being.

The vice of inebriety diminishes the power of mind and destroys the greater part of the organs of the body.

The baseness of the two vices brings man within measurable distance of insanity; it renders him insensible to the obligations of morality; it produces a state of misery or melancholy; it impairs the faculty of judgment; it darkens the intellect and obstructs

fine feeling and good desire; it leads to organic disease of the brain, and soon presents symptoms of insanity throughout. To do more than merely to mention the weaknesses, the miseries, the faults, the crimes of men through transgressing nature—that is, in neglecting the habit of reflection on the true value of a healthy body and mind and in impairing a sound, mental condition, exceeds the space of this present work.

If it is the student's desire to reach the utmost extent of human knowledge, and to be able to examine the most secret paths of science, and to do something worthy of remembrance, he must acquire the habit of improving fragments of time; he must cultivate habits of correct thinking and mental discipline; he must exercise his power of mind and form those trains of images into coherent thought; and pursue them gradually with the mental power which is the heritage of every man.

He must seize the opportunity of living, studying, and amusing himself by method, because it is of paramount importance to all professions to tread the walks of this life in

a methodical manner. Acting upon this rule, he will learn to estimate the real value of life, of knowledge and of pleasure.

Too much pride weakens the mind, it destroys even the foundation of all knowledge. The mind must be disciplined, and so regulated as to derive knowledge from all things that pass around us, and ever be on the watch for information from books, discourses, conversation, and, above all, from example, because it is the influence of the mind that leads to the discovery of the laws of rigid inquiry, and of the development and improvement of the understanding. Therefore it cannot be too carefully borne in mind, that strict control over the passions is absolutely necessary.

We will now observe, we hope profitably, what impedes the advancement in the art of thinking in philosophical studies. That student must fail in the regulation of the various mental faculties, who does not cultivate his memory.

Do we actually think, when we read, study, or speak ?

Does the knowledge of the things we study penetrate into each mental faculty ? This question of concentration must ever be kept in mind and is essential to the establishing of any effective idea. Thinking keeps unfolded the totality of what has actually been determined by the power of the mind. It obviates all necessity for the mind's recapitulation of concrete principles, and it immediately makes man conscious of the task he has to enter into. The Author's opinion is that reading is a very good food for the mind, but thinking has a greater power.

There are many rules recorded in books on the art of thinking ; some of which are really useful. In the writer's opinion, a man's thinking faculties must be free of all that would distract, if his main object is to be achieved. What is this main object ? It is the absolute and complete understanding of whatever is under consideration. Having attained the totality of the knowledge of any philosophical subject, cultivated by regular periods of study, reflection, and con-

versation, the power of thinking will soon grow strong, and will recall with promptitude the truths which the mind had been labouring to secure.

Reading gives intellectual life to the Soul, but thinking makes it conscious.

THE ACTIVE AND NOTICEABLE OPERATIONS OF THE SENSES, IN RESEARCH OF SCIENCE.

BEFORE discussing the probable efficacy of this interesting subject of the senses, so elegantly exemplified and understood by the Catholic Church, it may not be amiss to bestow a few words upon the senses engaged in research of science.

It is generally held that men have five senses—namely, seeing, feeling, hearing, smelling and tasting, but regarding the inconsistency of our froward dispositions with respect to our real wants, the senses are not indifferent to our abuse of them.

We ought to derive enjoyment from all the senses if we have the disposition, or mental perceptions to ascertain the consequences of our instinctive desires.

In the origin and growth of nature there was no inherent propensity to indolence, no transgression of her determined course evolving life and power, which are not re-

duceable to a rigid formula, or demonstrable by the methods of mathematics.

The bearing of the senses upon science, particularly the medical science, is therefore, not sufficiently considered by students.

In the first place, the most important fact which has been apparent to the writer, after having examined the methods of our medical training in all its branches, is, that students need to be more familiar with the nature of their senses and the properties of their minds.

We may safely assume, as an established fact, that it is not mainly through the instrumentality of the senses, that the mind adds its own positive quality to the manifestations of the senses.

The perceptions which issue in the ideas of the mind, are dissected when you write or speak what you behold internally. You must understand what is contained in the conceptions of your mind, before you can make others understand them. But the ultimate question, whether they are true or false, is often detected by other people's faculties.

There are men who naturally think accur-

ately just as there are birds that sing well. But all men are not equally capable of thinking, especially through the senses.

The understanding then, which sees rightly and conceives clearly and the heart which feels keenly and naturally, and the tongue which expresses the exquisite delicacy of the human ideas, and the voice which gives a variety of intonations, awakening the attention of the hearers, and the eyes which enable us to penetrate the impression of objects, through the senses, images, and ideas, and the ear which echoes to the mind how to look directly and fixedly at verbal ideas of pure intelligibility,—all these depend on the mind for their validity.

The present age affords more remarkable features to the man of thought than does any period of past centuries.

We are all united in thought that the present century of science is immeasurably outstripping scientists of past centuries and is achieving tasks in all branches of science which were deemed impracticable a few years ago.

Astounding theoretical progress has been

made in technical science, commerce, industry and so forth. Yet, on the other hand, we have made little progress in our state of education in comparison with the advancement of science; yet it is obvious that it is the sacred duty of every right-minded thinker that every man should be developed to think, work and possess power of comprehending the acquisition of knowledge because it is with these qualities of pre-eminence that man becomes the Scholar, the national Leader, the Law Giver and the Physician.

Whoever nowaday sets out to investigate science may well examine the functions and properties of his mind and senses before studying any detail of the processes of natural science. If a man fails to comply with this Hypothesis he will find that any subject will transcend his understanding.

MENTAL SCIENCE FOR UNIVERSITY SCHOLARS.

For some years past we have become increasingly conscious of that fact, that science exhibits a certain superiority in its methods and investigation which is not grasped by the average intelligent man of the twentieth century. It is no secret, too, that it has not adequately improved the efficiency and training of the average mind. One thing, however, must be borne in mind, that educational problems are confronting civilised nations, whilst science is revolutionising the Industrial World, and is, alas, greatly neglecting the Spiritual World. Science has failed to reach finality in her efforts to educate, or to perfect any one branch of art. For example :—

Where are the facts, principles and processes which are to cope with the intricate problems, and complicated machinery of our scientific age ?

Where are the systems to meet the uninterrupted progress and expansion of

British Trade, and the vast Social and Industrial forces, which must need intelligence, skill and training ?

Where is the technical knowledge to control the huge mechanism of industry in the State ?

Where are the trained teachers who are prepared to utilise and develop the natural idiosyncrasies ? It is not quite clear that in most subjects our teachers are not competent to deveolp the set subjects pedagogically ?

Where is the encouragement for students who possess exceptional abilities in the mechanical and artistic side for general culture ?

Where are the male teachers capable to develop virile men. It has been proved that female teachers are indefatigable workers and have passed examinations with brilliant success, but they are lacking in creative and imaginative power, which are so essential in the art of imparting knowledge.

Education will never altogether modify a woman's nature, and there is little hope that

she will recover from her mental disabilities and awake to a consciousness of her special deficiencies. Therefore Female Teachers are inefficient through nature in an occupation where imagination, power, individuality, insight and originality are wanted.

It is imperative that some means should be found to attract men with superior mental gifts and practical instincts for teaching in the profession. If anyone doubts this let him consider the following questions :—

Where is the curriculum that will enable teachers to give the simple, practical, common knowledge, which they so much need, to boys and girls ?

Where are the scientific methods to develop capacities for research in medical and other sciences ?

Where are the scientific thinkers who will lead us on to truth during the course of our difficulties in scientific researches ?

Where are the religious teachers who are fit and able to form character, to discipline the minds of students, so that they may master knowledge ?

Where are the lecturers in our schools

for advancement in literary, linguistic, and economic knowledge ?

Where are the scholars and the commercial business men who do appreciate technical training ?

Where are the technical graduates whose mental qualities are strengthened and balanced in order to pursue a study in Medical Science.

It is obvious that we cannot discuss these questions within the scope of this book. Let us, then, glance in the briefest and most fragmentary of surveys at the great mainspring of intellectual progress.

Now the first principle to grasp is this, that too many theories in the course of one's study deprive the mind's labour of all scientific value, and all intellectual improvement, and produce a weakness in the instincts of nature and stupify memory, observation, reason, perception and discernment.

The great and obvious objection to the study of too many subjects is that it prevents thought, reflection and rumination, without which learning or studying is merely idle work.

How many students (young or old) suffer from headache, sleeplessness, vertigo, confusion of thoughts, failure of memory, and many other symptoms, indicative of disorder of the nervous system? If the brain, lungs, muscles, stomach, or any other part of our system is exhausted, fatigued or impaired, all scientific and literary studies are of no use.

The intellect can do little towards the investigation of subjects if it is engrossed by a multiplication of sciences, because it cannot concentrate again if students are simply taught in order to accomplish the smattering of the school's curriculum, then it is a sin against the light of reason and wisdom. The minds of our students, particularly in the medical studies, present higher and nobler claims than the mere accomplishment of guesswork and cram. The human body and mind have a greater claim on our affections and reverence than all riches and pleasure which many men so eagerly pursue. When we direct our serious attentions to that most wonderful of God's work the "Human Mind," we are amazed to find voice, and

intellect labouring in vain : we must admit that the question well deserves consideration ; at the same time, it is not difficult to find a satisfactory answer.

Who is the man that gains strength by continually digesting a quantity of a too mixed food in one meal ? Similarly, no one ever gains knowledge or wisdom by attempting to digest a multiplicity of subjects.

The mind must have ample time to act upon the matter which it has derived from books or from the instructions of the professor. If the mind is properly used and developed within just limits, the results would compensate the labours of those who have spent so much mental exertion. Therefore, to educate with any real advantage, we must distinctly comprehend what is the nature and power of the mind in order to command attention, and not to allow it to wander away to other subjects of different nature.

The attempt to force the mind with subject after subject is doing it violence, and retards its development. No man was ever a skilful architect, or carpenter by studying meta-

physics, theology and advanced science during his apprenticeship. The mental effort to do so would only confuse the mass of matter trusted to his memory, because the process of reasoning in each subject is a series of propositions, expressing so many judgments, so many thoughts, so many cognitions, in passing from one idea to another. It is not the mere having within our reach many kinds of knowledge that leads to accuracy. We must determine the natural gradation of ideas before the mind can fix its attention upon any subject.

A STUDY ON THE ART OF READING.

WHEN we contemplate the immense number of books in every branch of science, we are apt to over estimate the progress and prospect that lie before us. "I may justly and truly complain," says the wise Anatomist of melancholy, "that I have read many books to but little purpose for want of a good selection; that I have confusedly tumbled over divers authors with small profit." "Nowhere more than in medicine," writes Frederick Hoffman, "will you find books that are worth less and delusive, making mighty promises in red title pages, and giving miserable performance in all the black pages which follow." Locke writes: "He who will inquire out the best books in every science and inform himself of the most material Authors, will not find it an infinite work to acquaint himself with the sentiments of mankind concerning the most weighty and comprehensive subjects." I believe that sound judgment in selection of books is capable of rendering very much more important services to medical studies, than we are in general apt to consider. If those who are devoted to intellectual pursuits

display good judgment in the choice of books, they enjoy the means which fit them for philosophical and strenuous studies.

It is no idleness of mind to aim at a varied selection of good scientific literature ; for we desire *it* only as a means of seeing faults more clearly and devising more judicious means for learning.

The branches of science are multiplying with amazing rapidity, so that people can only study to advantage owing to the multiplicity of technical details, when the mind has been properly trained to assimilate them. Therefore if we really prize mental culture or are deeply anxious to master the science of healing, we must economise the mind's strength and let our heart burn with an intense desire to cultivate first our mental perceptive powers and functions of mind.

All tasks in the Study of Sciences, particularly the medical profession, demand sound judgment, precise adaptation of means to ends, great energy, promptness of decision, and action in emergencies, self-control, vigour, and constant appeals to the intellect.

Reading strengthens and invigorates the

minds of men, disciplines the impulses, and selects subjects for reflection. If we desire to succeed, we must give our whole mind, heart and soul to methodical reading. Fuller, the old divine, says to those who would remember what they read: "Marshal thy notions into a handsome method. One will carry twice more weight trussed and packed up in bundles than when it lies untowardly flapping and hanging about his shoulders." We must cultivate, then, methodical reading, if we wish to succeed in medical studies. It must become our second nature. Have books in all branches of learning, and train the mind to master all details, principles, and applications of books selected. If we are to succeed we must love reading, for in no other way can we be a real student. It is not talents nor acquirements, but reading with enthusiasm and earnestness that will gain knowledge in any branch of Study.

There is no subject that does not demand reading. Even the less intellectual callings would go to ruin without it. It matters not how clever or brilliant professional men may be, or how fertile in expedients, if they read

little, they will sooner or later come to narrowness of mind, which is unfitted for great and comprehensive enterprises. We do not know anything except by observation, which is quite as valuable as intellectual reading.

If we desire to succeed as physicians, or scholars of science, due assimilation of our reading is indispensable:—Various other mental qualities are necessary to combat ennui and wayward impulses, and to train the natural bent of the mind which is so difficult of determination, so capricious with students whose business is all concerned with the brain and special studies.

Those who have attained in science or philosophy what is called success have mostly been persons of literary labour. The energetic and systematic reader regards a skimming over a book's study lightly, or dashing off subjects perfunctorily as a serious mistake.

The necessity for reading for success in medical studies is so obvious as hardly to need further remark. We give an outline of the subject which may be useful for reflection and research, if not for immediate application.

A student who does not read thoughtfully, no college, no training, no discipline, can ever make a physician. A thoughtless reader is unquestionably poor material from which to make a doctor of medicine.

If the student has a brain that is capable of comprehending the resources of science of organic life, and is engaged with topics that exercise his reason, and does not feed his mental gifts with reading, the mere exercise of his senses would exhibit no intellectual bearing. Therefore, to cultivate his mind in such a manner as will best fit it to prosecute the study of medicine, and as will put it more speedily, more certainly and more thoroughly to master that science, he must give himself to reading. Without a well-read mind it is difficult, if not impossible, for one to attain excellence in the medical profession.

As a blind man can never become proficient in medical physiognomy, or never by any degree of knowledge read in the lineaments of patient's faces the nature of their disease, so ill-read minds will never detect the signs and symptoms of numerous diseases. Therefore, we must weigh the facts we read until

they rouse and kindle and sustain the heart, and until the growth of the intellect, of imagination, of the will, give the certainty of reason, and faith in the philosophic classification of what we have read. Have we any reason to believe that reading often enfeebles and prostrates the intellect and fills the mind with a farrago of false notions and erroneous opinions ?

Many books are read from sheer badness of heart, and to stimulate low passions in nature, and no desire for literary aims. There cannot be a greater error in literary studies than to be constantly perusing and digesting ill-written literature, because it has a great tendency to weaken the moral sentiments and thereby endanger the mental interests in nobler occupations of the mind.

We will now consider for a few moments the great danger of constantly changing text-books during the student's progress of scientific culture.

Changing Text-Books.—As books contain very different opinions and authors are subject to moods, for mastering particular subjects, tending to exhaust the physical and

mental perceptive faculties, we denounce the system of changing text-books. It is one thing to read a book of science and another to know the exact mode of its application to special cases. It would be preposterous to try to understand scholastically and precisely the mood of the mind in definitions considering the individuality and the multiplicity of authors.

It is easier, of course, to point out the dangers resulting from too intense devotion to any author's ideas on particular subjects. It is a disease of the mind, and is exceedingly unfavourable to the exercise of the mind's functions. There is nothing more common than for students to be dissatisfied with the compelled interest in set text ; knowing that the idea of changing text-books is an improper means to prepare them for the grave duties of a calling on which the lives and happiness of human beings will so often be dependent.

The mental nature and conduct of man point to the great paramount fact, that the mind is the seat of the intellect and the intellect depends for its incipient actions and

stimulus on the influence of disciplined passions, patience, and reading, which act through the perceptive faculties.

But do too many subjects under observation give greater mental value, energy, and versatility than do those which are mastered at the expense of preparing and digesting an elementary training, in order to meet the maturity of other technical subjects ?

We urge the studious to study books for a set purpose—namely, to acquire knowledge and intellectual improvement. Keep books ever open to the mind, providing that the constitution and health of the student, and strength of his eyes be not weakened.

When we want relief or variety, we may try to aid the memory by writing our impressions, which have been gained from books read. This is an invaluable exercise, for, first of all, it will greatly improve the extent of our knowledge and improve our power of expression and gain command of words on which mental progress depends.

Much experience has shown the author that it not only leads to comparison and valuable reflection, but tends to help the

student to avoid Latinised words and far-fetched metaphors and unnatural, flowery language, which are not at all essential to literary style.

It is a great error to read books which illustrate a high standard of excellence in science, art, and literature, which are not intended for the general reader. The first thing to consider is—for what purpose are we reading, and do the subjects we read suit the talents and faculties of the mind? "If I surpass other men," says Newton, "in anything, it is in the patient examination of facts."

Enough has now been said on reading, but before we bring to a close our remarks let us select one quotation from the able pen of Sir Bertram Windle: "Anyone who has devoted a good deal of time to scientific study will agree with me that there are various classes of such books." I will take three groups of these works, and endeavour to explain what I mean by examples taken from each category.

In the first place, then, there are books written by men of science for men of science

to read. These form the basis of all knowledge, but to most persons they fall into the category of *biblia abiblia*, being even less readable than Kelly's directory. Let any ordinary person take from the shelves a volume of the *Proceedings of the Zoological Society*—a collection of learned discourses over which I have spent many hours of my life, and to which I may confess that I have contributed a good many papers wholly unintelligible to the ordinary reader. He will be delighted with the splendid illustrations with which the Society so lavishly decorates its volumes; but when he begins to try and read the papers he will soon find himself sorely puzzled. And why? Because he is trying to read a work written by specialists for specialists. It is the same with all such writings. Huxley once boasted that he plucked the heart out of the works of Saurez in a summer afternoon spent in the Library of a Scottish University. He plucked just about as much real information out of them as Saurez would have plucked in the same period of time out of Huxley's paper, "On the dentition of the

Wild Canidae," in the *Proceedings of the Zoological Society*—and that is practically nothing. Every science speaks in its own language, and those who do not know that language are beating the air when they try to read the literature—if, indeed, it can be called literature—which it enshrines.

But there is one thing which may be said of all such writings, and that is, that, taking them in the mass, they are models of humility and modesty. " I have found such and such a thing "—that is a statement of positive fact and need not be expressed otherwise than positively. But, when it comes to a matter of opinion, it is " It seems to me," or " The facts suggest such and such an explanation," or " It may well be argued," or some such phrase.

Caution, scientific caution, is the rule in works of this kind ; but again remember they are the works which are never read by the general reader, and for the very sufficient and excellent reason that he could not understand three consecutive lines in them.

The second group comprises the serious works on " Biological Philosophy," or on

"Biology Philosophically Considered"; works in which it is endeavoured to link fact with fact and bring them into harmony; to elicit the laws of life, development, variation, and the like. Such were the works of Darwin, at least most of them. Such are such books as Professor Morgan's *Evolution and Adaptation*, to mention the first which rises in my mind. These books, whose authors are genuine men of science, as a general rule exhibit the same laudable caution and the same restraint which I have alluded to as marking for the most part those of the first group. Most of them are intended for readers with some knowledge of science—indeed often a very considerable knowledge is presupposed—and, except in rare cases, none of them influence the general public mind except indirectly and a long time after their publications, and then only through the medium of what are commonly called "Works of Vulgarisation." And the reason is quite obvious; it is because they appeal to an audience different from the ordinary public.

Thirdly and finally, we come to books of Vulgarisation, as to which I have, in the first place, to say that, if properly done, and done by the fitting man, such pieces of work are worthy of high praise. For the unreadable facts of the first class and the hard sayings of the second are here translated into language understanded of the people, and matters of which they would otherwise have remained ignorant are brought within their ken. But in the case of these books, almost everything depends upon the person who carries out the work of vulgarisation.

ON THE TECHNICAL RULES IN COMPOSITION.

COMPOSITION has a considerable claim to a place of importance in any examination, because it is a means for developing the faculties, and a valuable ally in practical life. It is true that only the few who are especially gifted will ever excel in elegant style of composition, but it is no less true that the great majority of students can be taught to write with tolerable accuracy, clearness of thought, an adequate vocabulary, and acquaintance with the right forms of speech to meet any examination.

Although little can be done in our primary schools in cultivating an elegant style, nevertheless, elementary composition, when thoroughly known, tends to develop a sense of taste and beauty of form in combination of ideas. Composition is the handmaid of Science; nor is it only in constant demand in examinations and commercial offices, but it is a valuable aid in training the under-

standing and in quickening the powers of observation.

No one can make an earnest attempt to express upon paper his thoughts effectively, unless he is a master of the rules of grammar and syntax, and possesses an adequate vocabulary. At examinations a student finds he has to think intently of his subject before he can write it correctly, and he finds that no one can make his subject clear unless it is first of all clear to himself. Therefore every student should practise framing sentences about subjects which are likely to be set for the examination, and should take part in conversational lessons on subjects of scientific knowledge. We thus increase our command of language and acquire definiteness and clearness of thought; because oral composition serves as a model for written composition in choice of words, in orderly arrangement of ideas and lucidity of style.

From the beginning of the composition to its end there must be a persistent endeavour to understand our subject, and every word which it contains. When at the examination, it is not enough to read our papers and hastily

give our version of them. The initial step consists in thinking answers to definite questions, in the form of easy sentences. The next step is the combination of ideas governed by the rule of syntax, choice of words and sentences, correct mode of spelling, good punctuation and, above all, tasteful forms of expression.

Care must be taken, before setting to work, that the mind is furnished with ideas on the subject which we are required to write about because it is impracticable unless we are in possession of the clear ideas to be expressed.

On beginning the essay two difficulties present themselves before the student's eyes :—

1. A selection of words suitable for the subject under consideration.
2. The effective arrangement of ideas.

To overcome these difficulties two things are necessary :

(A) An adequate vocabulary, giving the meaning of each word.

(B) Ability to write as we would speak to persons, and to finish one topic before beginning another.

Remember every idea has its own proper use,

very seldom do two or more ideas bear precisely the same meaning.

The subject of composition is second to none in point of importance, and very justly so, because it exercises the mind in cautious steps from premises to conclusions—from what is given to what is required. The study of this subject tests the general intelligence of the student, his grammar, his spelling, his penmanship and classification of ideas. It also forms a habit of concentration of thought, and fixed attention on any subject (because any wandering of the mind is a fruitful source of error, and leads to much trouble in the effort to get right again) and gives practice in the formation of clear and exact statements and grammatical arrangements of one's thoughts. By this means the student will, after a time, become as it were unconsciously possessed of the best modes and turns of expression, and will understand that the natural sequence of paragraphs in any essay or literary work should be the proper logical arrangement.

Apart from its educational value, composition has a strong claim to a place in every

examination curriculum on account of the varied knowledge required—*e.g.*, one type of knowledge tends to develop a moral mind, another increases a candidate's interest in the scientific studies of life, and yet another leads him far into the range of human history.

Therefore it is a great mistake to suppose that scientific literary writing requires no special preparation. In fact, the student's first care must be to acquaint himself with a selection of likely subjects, and when at an examination, this mode of judicious selection of subjects should be considered the important feature by the student. It is a very good plan, if the student cannot grasp the important features of his subject, to index in his mind its headings selected from examination papers, and to arrange them in logical order. This means will enable him to portray clearly and gracefully what he has read and previously studied.

It is a serious mistake for candidates to choose subjects with ambitious titles, because they often find their utter inability to deal with them. "With full command of your subject," says Horace, "you will never be at

a loss for either words or arrangement." Students who choose subjects with which they are wholly unfamiliar are playing about the fringe of composition. When selecting two or three subjects from test papers, do not choose those subjects which you do not understand. South's advice on the art of composition is a good guide to students—namely, "to think of what you have to say, and to use the first words which present themselves—the first words will be the most natural. You may afterwards correct with a view to brevity and rhythm." Let it be granted, therefore, that selected fitting subjects involve less difficulties, and are likely to secure clearness of expression.

If the student desires to achieve a correct style in prose language, poetical exercises are recommended. "One thing I do know," says Southey, "to write poetry is the best preparation for writing prose. The verse-maker gets the habit of weighing the meaning and quality of his words until he comes to know, as if by intuition, what particular word will best fit into the sentence.

People talk of my style. I have only

endeavoured to write plain English and to put my thoughts into language which everyone can understand." On another occasion he says: "Sometimes you should write verses, because if ever you become a prose writer you will find the great advantage of having written poetry. No poet ever becomes a mannerist in prose, nor falls into these tricks of style which show that the writer is always labouring to produce effects. Therefore, to excel in the art of the varieties of descriptive and narrative style, which are exceedingly numerous, one must have a natural liking and aptitude for the work. The power of chaste and eloquent composition is not given to all, but it is in the capacity of all to write upon paper their ideas on any simple subject, logically and in correct order. Success in styles of any of the four following heads—namely (A) DESCRIPTION; (B) NARRATION; (C) EXPOSITION; (D) ARGUMENTATION, depends mainly on the poetical knowledge and reading of the student's mind. A quick, observant eye is one of the senses which rules spelling, punctuation, grammar, and style. The student who does not use his

eye when writing had better look elsewhere for a livelihood, because the art of writing to him would be a mere drudgery, and a constant source of unhappiness. The eye is to the mind what food is to the human body, and reading is to the faculties. It is astonishing how clearness, charm and vivacity are obtained in composition by the use of the eye and the sense of the ear.

The general idea of description is to bring before the mind's eye of the reader a clear conception as though the reader himself were seeing the object, scene or person described.

The art to convey to others in style of descriprion, what we ourselves vividly realise, is the work only of those who are especially gifted. But it is no less true that the great majority of students can be taught how to produce in a reader's mind a clear picture of the thing to be described. A person without knowledge or imagination of what he is about to describe is only attempting a useless task.

In drawing up a picture of some scene or object, we must be guided by the trained eye and ear. A distant endeavour should be made to implant the salient features of the

object, or scene, on the memory, and to keep them fresh and green by revised exercises in mental pictures. Therefore by descriptive prose we mean any particular composition or description of plants, animals, minerals, towns, buildings, ports, countries, islands, seas, rivers, and aspects and phenomena of nature and manufactured articles. From this brief survey, it can be seen that description is the great test of a student's intelligence.

There is one common and capital error on this subject which must not be left unnoticed. We must avoid confusing in the same sentence those thoughts and statements entirely remote from the first mentioned. Do not write your description either very long or very short. Whenever you are compelled to write a long description, care must be taken that the different parts be so constructed that each part may be understood as the description proceeds, not leaving the mental picture of the different parts of the description in mere confusion. As to the method of dealing with the different points, regarding clearness, it is a very general fault with candidates to overcrowd their description. The frequent re-

currence of ellipses, even when obscurity and vagueness do not arise from them, gives to the description the appearance of labour, which is offensive in composition. We may, indeed, avoid an over-elaboration of detail, but we should endeavour to suggest more than we express. Those who are ambitious of obtaining clearness and good style in English composition ought to study with attention the writings of eminent men of letters. From this method is often derived an elevated mode of expression as well as of thinking.

We find that one of the great prose writers of modern times is the Right Rev. John Cuthbert Hedley, O.S.B., Bishop of Newport. He laboured much to advance the style of composition to its present degree. He brought to the study of his mother tongue a vigorous mind fraught with various knowledge. Those who are acquainted with his writings will not need to be informed that his style is remarkable for clearness, elegance, comprehension and refinement. The literary style of the prelate seems to bear some analogy with that of Cardinal Newman. His diction is correct

and elegant and, at the same time, free from every species of affectation. The classical ease of his manner has seldom been equalled. The richness of his diction, copiousness, ease, purity and variety in his philosophical works, will teach the student the art of fine style in English composition.

The selections taken from the biographies of great writers who have excelled in literature are recommended to students for the acquirements of accuracy in composition. The study of models is the best means of effectiveness in this, as in every art. Pope formed his literary style on that of Dryden. Gibbon mastered the style of Blackstone. Robertson carefully studied the writing of Swift and De Foe. Burke committed to memory Young's *Night Thoughts*. Robert Hall delighted in Johnson and Howe. Erskine was intimately acquainted with Milton's writings. Nor is there a single writer who has excelled in literature who has not studied models for purposes of style.

THE MIND IN THE STUDY OF CLASSICAL LATIN AND GREEK

THE Greek and Latin languages, which were originally spoken, belong to the peoples of the family names of Aryan, Indo Teutonic or Indo Germanic, who probably inhabited the land around the Caspian Sea. These early languages spread over a great portion both of Asia and of Europe, and marked the first elements of order, and of civilisation among their rude inhabitants.

The historical records present a vivid picture of the Greeks as an independent race ; distinguished for their enterprise and mental activity several generations before the Christian era. This race emerged from the darkness of barbarism to the cultivation of literature and art. Some of the later Greek and Latin poets, historians and philosophers, were distinguished scholars of the Catholic Church. The Church determined to breathe new life, energy, and mental vigour into the systems existing in those days. Hellenic, Teutonic, Celtic and Slavonic literatures, art and instructions flourished so constantly from

these scholars that each succeeding generation saw the reappearance of some of those master works of literature and art in sublimest forms. All students should study in particular the following :—The tragedies of Aeschylus, Euripides and Sophocles ; the comedies of Aristophanes ; the history of Thucydides ; the orations of Demosthenes ; the philosophical treatises of Aristotle and the dialogues of Plato. Useful also as a means to the acquirement of a general culture would be a study of the comedies of Plautus and Terence ; the treatise of Cato on Agriculture ; the philosophical work of Lucretius ; the lyric and elegiac poems of Catullus ; the histories of Cæsar and Sallust, with the antiquarian treatises of Varro, particularly the orations and philosophical and rhetorical works of Cicero, which were all preserved and studied through the influence of the Church. Then they should pursue the poems of Virgil, Tibullus, Horace, Ovid, and the History of Livy. Weigh the sentences of Seneca, Pliny, and of the poet Lucan. Then turn your mind to the best Christian writers, the scholars of the Roman Catholic Church, whose works are

free expressions of thought, admired for their precision, energy and clearness.

The poetry, philosophy and history of what are called the dark ages are worthy to be placed side by side with the greatest and most characteristic works of modern writers.

Hence you will find that the knowledge of Latin had not been confined exclusively to the clergy as some of our modern writers imagined.

It is highly important here to note how much the study of Latin literature becomes more interesting and more fruitful in the mediæval curriculum. It is not difficult for us, after all, that has been said concerning the marks of an indigenous growth of the Latin tongue, to recognise the paramount importance of the study both of Latin and the Greek literature.

The essential characteristics of the Greek race are contained in the Homeric Poems, which cannot be placed later than several centuries before the Christian era. Many of the earliest Greek poets, philosophers, and historians were citizens of the colonies in Asia. The *Odyssey* and *Iliad* composed by

such wisdom have been transmitted to us by Lanfranc, and the great Medieval surgeons and the papal physicians, who, together with general culture, also encouraged medical science in all its branches. These poems would not be known to the warm patrons of literature and art of the present day, had it not been for the intellectual capital of the Holy Catholic Church.

In a very short time the wisdom of Latin and Greek languages flourished as far as the banks of the Indus, Caspian Sea, Central Asia, and Egypt. The nations of the Eastern and Western Europe lost no time in yielding to the superior and incalculable advantage of the national character and civilisation of the Latin scholars. For years the Grecian schools and the kingdoms of the European states listened to the lectures of the Catholic professors upon the various branches of grammar, rhetoric, history, philosophy and religion. The real love for literature and art had increased so in time that the nobles and conquerors studied the numerous works written in Latin. In other words, Latin became a kind of universal language, which

was spoken, read and written, by every man of education in the Western and Eastern Europe.

The works of the Latin poets, Livius Andronicus and Ennius, were translated by the warm patrons of literature of the Middle Ages to such a degree that the succeeding generations filled their libraries and their halls with statues of the Catholic translators. Archilochus, the inventor of the lambic metre, whom the opinion of antiquity placed on a level with Homer and Herodotus of Halicarnassus, all belong to the brilliant period of Grecian history, dealt with by the Catholic translators.

The Greek tragedies, comedies, philosophical treatises, are in themselves products of creative genius and food for the mind.

The Greek schools of Athens and Alexandria, of Marseilles and Tarsus, were frequented by numerous students from all parts of the civilised world.

I think I have sufficiently indicated that the education of this country has been founded upon the study of Latin and Greek.

Some of the greatest names in classical

learning belong to the Roman Catholic Church. To her labours we are indebted, particularly for medical Science and Literature, which must excite the astonishment and admiration of all. Therefore it will not be amiss to study ancient history, chronology and literature, whose translators display critical acumen in the examination and study of evidence, and an application of the most varied knowledge to the subject under discussion.

BRIEF REPORT OF THE AUTHOR'S CLASSICAL DISCOURSES

Greek, Latin and Hebrew

BY

The Monmouthshire Post, 1919

Invention of Oratory.—It is not very easy to convey any adequate idea of the comprehensiveness of the introductory discourse (as reported in the *Post*) which Mr. Timothy O'Mahoney addressed to his cramming students who are studying classics, medicine and philosophy on Saturday evening at the Carlton Chambers.

Having noticed and exposed what great men term " the darkness which enshrouds the early history of all nations," the lecturer traced how the Pelasgians were reclaimed from barbarism by Oriental strangers, who taught the rude inhabitants the first idea of order and first elements of civilisation. There is no doubt that the Greek alphabet came from the Phoenicians, but the Greek progress of an indigenous growth which has reached

to the invaluable element of power in learning and in eloquence, is the merit of the earliest Greek poets, historians and philosophers all natives of the colonies in Asia.

The Greek had great love for mental activity. So intense were their feelings for cultivation of literature and of art that it is hardly possible for any modern scholar to over-appreciate their learning and detail their various mental characteristics.

After the expulsion of the Persians from Greece, Athens became the intellectual capital of the Hellenic race. The Athenian scholar constantly produced some of those master-works of literature and of art, which have the true vigour and beauty of highly distinguished gifts and acquirements. Can the civilised world, or even the Western Europe, understand the mighty merits of Homer? Or, again, have we aroused our slumbering minds to the intellectual energies of the tragedies of Aeschylus, Sophocles and Euripides, the comedies of Aristophanes, the history of Thucydides, the orations of Demosthenes, the dialogues of Plato, the Philosophical treatises of Aristotle, and the name

of Marcus Tullius Cicero, "who will shine resplendent to the crack of doom itself." When we grasp the creative spirit of Greek genius and attempt to appreciate its vigour, and master its various branches of grammar rhetoric, history and philosophy, we shall become men of incalculable advantage to our own national character and social happiness.

INVENTION OF ORATORY.—With elaborate chronological precision, the lecturer offered a tribute of respect to the Latin authors, Symmachus, Boethius and Cassiodorus, all of whom held positions in great trust under the Gothic king. Then he unfolded the beauties of that brilliant scholar Alcuin, who taught Pompeius, Festus, and Eginhardt. The lecturer, having traced the points of scholastic philosophy conducted in Latin, (copies of which works are collected in the libraries of all universities in the world), proceeded to explain the first invention of oratory. Men in all ages had derived so much pleasure and delight from the stories of intellectual wealth of Egyptian fables, that it would be difficult within the limits of a single discourse to give any account of the first invention of oratory,

and its origin and progress from the time of Pittheus and the siege of Troy.

Then he disclosed in wealthy profusion the eloquence of the oratorical achievements of the Grecian rhetoricans. Commencing with the great names of Demonator and Dionysius of Halicarnassus. Passing to the Roman orators, he particularly exhibited their oratorical eloquence, and then paid a tribute of respect and admiration to the Latin fathers of the Catholic Church, Lactantius and Minutius Felix.

The next discourse is "Greek and Latin authors and how to study them."

GREEK AND LATIN CULTURE.—Dress on person does not mark the intellectual power of man. Often the men who accept the humblest positions and lead the humblest lives, aloof from the opinions of the world, are those of many splendid talents. What mingled feelings and happiness there would be in the present age if every right-minded citizen was engaged in apprehending the principles of intellectual power and discipline, which alone can handle public trust and the nation's authority. This was the lesson and

the feeling in the second discourse, "Greek and Latin Culture," given by Mr. Timothy O'Mahoney, to his students who are cramming for special examinations, at the Carlton Chambers on Saturday. He glanced over these internal and external causes of decay which have destroyed the literature and languages of so many other races, and then he set himself to the task of explaining the sensible charms in classical literature.

"Pronaque cum spectent animalia caetera terram, os homini sub lime dedit, coelumque tueri iussit, et erectos ad sidera tollere vultus." These celebrated lines of Lactantius should attract the attention of any modern scholar. The feeblest glimmering of reason amongt the most ignorant of our race appreciates the splendour and sweet thoughts in the man of intelligence, emotion and imagination. They had only to turn over the pages of the philosophical poem of Lucretius, the lyric and elegiac poems of Catullus, the histories of Cæsar and of Sallust, the agricultural and the antiquarian treatises of Varro, and the orations, letters and philosophical works of Cicero. These were the works which had immortalised

our love of the arts, sciences, and of the learned. No nation, no race, leave a more noble monument behind it than books and learning. It was an incalculable advantage to the scholars of this age to understand the vitality of Greece, her national character, her language, her literature, her philosophy and her civilisation. The lecturer expressed his feelings that the half-educated, ignorant men were the State's most discontented people. Therefore, if they studied classical learning that has dignified other great men they would become worthy and great men of this great and British nation.

The third discourse will be " Latin Orations and Greek Rhetoric."

It may be noted that Mr. T. O'Mahoney was a Hebrew, Greek and Latin scholar for nine years under Professor Edgar Williams, M.A., B.D., father of Mr. H. M. Williams, Solicitor, Newport.

Classical education was given the most attentive consideration in the third discourse, " Latin Orations and Greek Rhetoric," given by Mr. T. O'Mahoney to his cramming students at the Carlton Chambers on Saturday. Having

glanced over the splendid talents in Latin ideals, the lecturer showed the line of Latin influence in British literature. It would be a vain pretence to attempt to show precisely how far the Latin ideals have influenced the cultured minds of British writers. This Motherland of ours had kept the love for classical learning in the midst of all social changes. Having traced the higher branches of Latin literary culture, the lecturer expounded the Grecian rhetoricians and showed how the Greeks became filled with a burning desire to study and practise the fascinations of rhetoric.

The fourth discourse will be "Hebrew Study and Greek Orations."

Classical Discourse at Newport.—At the Carlton Chambers on Saturday, Mr. T. O'Mahoney delivered his fourth classical discourse to students cramming for special examinations. The lecturer sketched in elaborate details the brilliant merits of the Greek scholars. He frequently reminded his students of the power of eloquence, the oratorical achievements, and the accumulated knowledge in the classical Greek literatures.

The lecturer traced the formation of the Hebrew language, reviewing and analysing the many theories for classifying the critical Hebrew manuscripts, and gave an interesting account of the Hebrew scholars of the 17th Century. He then proceeded to expound the poetic power and plastic impressiveness in the Hebrew dress of thought: "Every student should study Hebrew from a philological and literary point of view, enjoying the national ideas of the Hebrew race, because they were dignified, sublime in simple majesty, and recalling the life of the patriarchal ages." The lecturer then unfolded the beauties of the Hebrew scholars—namely, Kennicott, Fabricy, Michaelis, Bentley, Mill, and Bengel and Eichhorn.

On Friday evening the lecturer delivered his first discourse on the study of Mathematics.

In his masterly summary, in the vindication of mathematical study, he traced the method of mathematical procedure, its higher developments, and its applications. The fifth discourse will be "Hebrew Grammar and its Peculiar Structure." The second course in Mathematics will be "Algebraical Geometry."

At the Carlton Chambers on Friday last, Mr. T. O'Mahoney delivered his fifth classical discourse to students " cramming " for special examinations. The lecturer gave a full sketch of an outline of the Hebrew grammatical researches made by Elias Leviata, Conrad Pellicannus, Reuchlin, Tubingen, Sebastian Munster, Santes Pagnini, Chevalier, etc. He then examined the signification of Hebrew words, singly and combined phrases, showing their grammatical value in sentences and paragraphs. At the close of a long lecture Mr. O'Mahoney said: " Study Hebrew grammar and compositions, combined with other intellectual subjects, and you will find life open to new sources of edification and delight." During the same evening Mr. O'Mahoney gave his second lecture, " Algebraical Geometry."

MASTER OF ENGLISH STYLE.—At the Carlton Chambers on Wednesday evening, Mr. T. O'Mahoney delivered his sixth classical discourse, " Classical English," to students " cramming " for special examinations. The lecturer said the works of the common herd of authors are useless and full of idle absurdi-

ties. Men should write for the honour of the human mind. Many of the leading articles in our local papers surpassed infinitely in the more excellent compositions of selected taste for the mind than many of the peculiar fancies in the works that filled our libraries, and ruined our morals. Well did Horace say: "We love whatever is forbidden. No man should close the eye of his mind to the masterpieces and to the writings of the most delightful and truly sublime compositions and to the leading articles of our papers." After some reflections on science reading the lecturer traced the genius of John Henry Newman's style of writing. The lecturer said that style was the employment of the mind in collecting thoughts so as to digest them and make them one's own upon paper capable of being read to advantage, and fit for talent in useful knowledge. In this science John Henry Newman was "England's greatest master."

The next discourse will be "The Art of Poetry."

THE ART OF POETRY.—At the Carlton Chambers on Wednesday evening Mr. T.

O'Mahoney delivered his seventh classical discourse, "The Art of Poetry," to students "cramming" for special examinations. After explaining the transports of imagination in poetical genius, the lecturer said: Poetry cannot be made a subject of superficial study. Reading of poetry fires the soul of a man who possesses good sense, wit, fire, and genius. No man can be a poet unless he possesses the fire of that enthusiasm that flames fiercely.

BOTANICAL STUDY A GREAT SCIENCE

THERE seems, indeed, to have been a time in the history of the most intellectual of our race when a knowledge of anatomy and medicine was not an essential part of a liberal education. What is this liberal education, about which our whole discussion is concerned? In one word, it is the cultivation of the art which best fits the human mind for any intellectual work.

Medicine, in part at least, is a study of drugs most likely to relieve or cure ailments of any and every kind. Human sufferers look for drugs and careful nursing. Accordingly the people look mainly to physicians and surgeons. Many medical schools were founded in various parts of Europe—namely, at Paris, Naples, Padua, Bologna, Rome, Oxford, etc. These schools realised that the teaching of medicine was part of a nation's welfare. The 13th and 14th Centuries' medical schools advanced rapidly in medical education and culture.

The Popes' enthusiastic encouragement of those seeking knowledge was much appreciated.

All medical writers,ancient and modern, treat of the Popes' appreciation in medical studies at considerable length.

Medieval history testifies that medical study flourished, while anatomy has been held in honour and maintained in wisdom. Even anatomical dissections, now so prized for the splendid relief of human suffering, only mark the scientific progress made in the medieval ecclesiastical schools of anatomy.

Great honour is unquestionably due to those ecclesiastical scholars who, by their learning and counsel have left to the science of anatomy and medicine such a legacy; hence the necessity of studying both ancient and modern writers. (If modern students desire to achieve the art of healing they *must* study ancient literature). Medical students of antiquity prosecuted the science of medicine and the collateral sciences with earnestness and success; although we cannot deny that some of these students have treated medicine somewhat frivolously. This was not the fault of the science, but was the misfortune of those who knew no better. Now that there is a better supply of scientific literature and

apparatus for science, with much greater exercise of intellect, medical science is daily enriched and is studied with much consideration.

It is needless to say how little "medical science" enters into the thought of the average man. In fact, it has become a very general impression that the study of medicine and anatomy is like that of modern commercial studies. This false impression has been produced and emphasised very strenuously by quacks and Christian Science writers. It is impossible for any serious student to embrace such opinions.

The brief summary shows how much modern students of medicine have to learn from the history of those great medieval medical thinkers.

We cannot here enter into a discussion of the botanical history in regard to which there is some difference of opinion; it must suffice to state that we all have some knowledge of vegetable physiology. We may know nothing about animal physiology, chemistry or accoustics, but we cannot fail to know something of plants which live and grow,

but which have neither sensation nor voluntary action. The little knowledge we have is not sufficient to understand the long eventful history of plants and weeds. However, it is neither wise nor profitable to give here an opinion of the history of plants, particularly from what we know of this vast assemblage of the productions of plant life, or to put them into their various classifications. Here lies the whole question and the tangled knots which have deeply engaged many scientists. It is impossible for our minds even to conceive an intelligible notion of the multitudinous plants which grow, and of which we know hardly anything.

Let us, therefore, study honestly, and from that standpoint of pure reason, the little history and knowledge that scientific men do possess. This most elementary knowledge unfortunately, though perhaps unavoidably, gives ideas that our knowledge is far more complete and rich than really is the case. "Consider," says our Lord, "the lilies how they grow; they toil not, they spin not, and yet I say unto you that Solomon in all his glory was not arrayed like one of these."

A knowledge of the fundamental facts of plant life appears very necessary. Medicine cannot be really understood without some knowledge of the details of the systematic classification of plants. The knowledge of systematic botany is unquestionably of great use and tends to facilitate the progress of the student in the medico-botanical practice.

The life of man is dependent on the properties of plants. A glance, however, at the nature of these plants will show their adaptation to the various diseases to which the human frame is subject. The acquirements of a large portion of this science is given by a knowledge of other progressive sciences. A fuller perception of the nature of the value of this branch of knowledge will be afforded if we survey the range of subjects it embraces. For this purpose we must include those plants which become a great source of nutriment through the medico-botanical practice. Therefore it would be advisable to state a few useful plants, examine them, and explain how their properties heal diseases.

1. "Parbeary bark" supplies us with excellent tonic, found serviceable in indiges-

tion, when added to other ingredients, such as cayenna. By a close study and examination of this plant, it has become evident that there is a rich exuberance of correctives in its life.

2. "The study of Bogbean" reveals to us the great fact that its life has correctives, and can be used with great advantage in indigestion and dyspepsia. This bean can be used in brewing ale or beer. We find in it with the greatest certainty and in greatest abundance a bitter taste which naturally excites the salivary glands.

3. "The Yarrow." The virtues of this plant are of inconceivable value in healing diseases. The study of the above "Yarrow" when prosecuted aright and in adaptation to the various stages of human suffering, is an immense benefit. Sir Wm. Temple once said that the ground "Ivy" plant can be taken inwardly or applied outwardly as valuable for the eyes, and gave testimony after ten years experience of its value, as a remedy or prevention of stone. Its adaptation in human relief of diseases is of surpassing importance. This plant relieves gout, rheumatism, pro-

motes perspiration, quiets nervous irritation and hysterical affections, etc., its utility is obvious.

5. "Red-Raspberry" plant is still of greater benefit in removing suffering. Very few men know its vast utility in clearing away of ulcers, sores, dysentery, etc.

6. "Horehound Plant" is efficacious for the relief of coughs and asthmatic complaints. What has just been said of the few plants is sufficient to prove the paramount importance of the study of botany. So deep have the sciences of anatomy and physiology happened to be, it becomes the students' privilege to administer the laws of medicine. (In other words, the vast and extensive field of botany would require the human stirred out of nature's dormancy).

The young student who has prepared himself to become a physician cannot form too early the habit of examining and gaining an accurate knowledge of plants. He should feel that an ill-knowledge of botany endangers his progress in medical studies. To be competent investigators in human anatomy and the science of medicine, it is essential to overlook

all, even important reasons for shortening botanical study, because it is the means best fitted to stimulate the young mind to qualify for a higher mental development.

REASONING IN MEDICAL AND OTHER SCIENCE,

AND

HOW TO AVOID ERRORS IN RESEARCH

To engage one's mind more effectually in a faithful and diligent discharge of the important duties of a physician, there must be obviously a treatise on a correct knowledge of the human body.

The mind of a medical student ought to possess a superior reverence for his studies, and a vivid imagination of the serious actions and engagements of human life in order to humour the passions and whims of men and women. He must conciliate not only the learned and the innocent, but the mentally deficient and the brutally ignorant.

We will now endeavour to give the student a brief sketch of the means whereby he may be capable of reasoning out and of discovering the fallacies which incapacitates the mind for those intellectual energies which medical studies require.

It will hardly be denied that the human race is endowed with reasoning faculties in

order that the mind may be deeply impressed by its advantages and disadvantages in the cultivation of the moral, intellectual and physical powers. The members of the human race have ideas of pleasure, pain and sorrow, these ideas may be called instinctive, and we may assert that they prove nothing beyond their own activity. But who claims that the human race should act according to these instincts.

We must act according to reason, which is prior to that which we call knowledge.

Let us then study the human mind and examine its tendencies and propensities in order to help ourselves towards the discovery of the erroneous opinions that there are no subjects beyond the intellectual faculties.

Any hypothesis in the branches of knowledge is certain when established by reason. So truly reason is supreme, because one cannot understand in language written or spoken, ideas that are without reason.

We will, for the sake of clearness, use two words, REASON—NORMAL and REASON—THOROUGH; the former to mark a certain degree of reasoning, in one respect, and the

latter to signify when the mind understands the real facts of any subject.

REASON—NORMAL, is not an analysis of deeper thoughts. In every human being, who reads, thinks and speaks, according to mere Normal REASON—NORMAL, is in conflict with truth and is open for revolt.

For example: A child may know the rule of algebra to be $- \times - = +$ (and knows it to be infallible in application), but how often does the mind when in a state of "REASON—NORMAL," evolve the idea that $- \times - = -$ which contravenes the basal principle of Algebra.

Now the question arises: How are we to put right similar multitudinous errors which creep into the mental states and activities. The only means that may be adopted to prevent repetition of errors while in search of scientific subjects is "REASON—THOROUGH."

With all his vigour of mind, a man may yet be wise or foolish. He may be obedient to something higher than his intellectual faculties may grasp or comprehend, and he may give judgment on scientific matters

which are outside his feeble ray of REASON. Hence it is worth while to trace at length the course of blindnesses and mental blunders of the mind, which are attributable to REASON—NORMAL.

There are two radical errors inherent in REASON—NORMAL. First the giving judgment on matters in an off-handed manner which results in vagueness of ideas and destroys the logical order of human thoughts. Secondly, it tends to nullify thoroughly scientific ideas owing to some underlying false or ungrounded theory. We have used the term REASON—NORMAL in a sense altogether different from that which it bears in every-day vocabulary.

We now illustrate our explanation by an example and a question.

Can a man REASON WRONGLY? If he can, what is it that puts him right again? The answer is REASON—THOROUGH.

Nothing would be more natural within the domain of human reason, than for anyone to say that gold can be dissolved in nitric acid. This shows reasoning of a kind, but

is only half the truth, or truth half apprehended.

Hence we may define the truth of any subject as intellectual act, by which the mind affirms the human mental interpretation through REASON—THOROUGH.

An example is appended of what is meant by the above remark of mental interpretation through reasoning powers; the subject will be music.

Example—In an analysis of music the mental perceptions lead to an outline of the grades of its uses as follows:—

1. Musical Sounds—Mechanical Notes.
2. Voice Sound—Natural Notes.

Hence we have music which moves human feelings most powerful in every stage of life.

(*a*) We have military music for fighting.
(*b*) Metrical music for dancing.
(*c*) Lively music for social company.
(*d*) Sacred music for religion.
(*e*) Funeral music for mourning.
(*f*) Vocal music for poets.

Every species of music may be classified and reduced to rules. I do not claim that an outline is a final logical conception as a

means of argument on any scientific subject, or a means whereby we may arrive at the ultimate notion of things visible or invisible.

But the use of such a classification is this: An outline in any scientific subject requires a mind of extraordinary erudition and penetration if we are to avoid "ERRORS." To cut short all questionings and to get out of ambiguities, we may safely say that REASON —THOROUGH is one of the best rules, whereby we may avoid mistakes when outlining the subject under consideration. This leads one to point next in importance—namely, that it is reason, and reason alone, that imparts validity to mental judgment and investigation. It is REASON alone that supplies the means requisite for mental pursuits. It is REASON alone that satisfies the human desires and the longings of a cultured mind.

It is REASON alone that enables man to overcome the burdens of life. It is REASON alone that enables and dignifies humanity. It is REASON alone that directs the mind to the study of phenomena and laws of the material universe. It is REASON alone that unfolds nature's secrets in the material

universe. It is REASON alone that unfolds the wisdom of philosophy and science, art and literature. In a word of uniformity of nature's operations and regularity of her laws are apprehended by REASON. REASON, then, in the proper understanding of the term, we have pronounced to be essential for the foundation of all knowledge.

A whole chapter devoted to the elucidation of so simple a motion as that of REASON must seem to many people irritating and mirth-provoking, which is quite enough to condemn it of triviality.

Therefore, the mistakes of Scientists, Philosophers and Commoners, are not attributable to REASON, but to self-deceit, or in contradictions through the complexity of ideas at the time of investigation.

It will not be amiss to consider briefly some dubious points in "ERRORS." If we are to arrive at the knowledge of truth, we must discern the errors during the procedure of our investigation. If it is perplexing to discern the truth of the subject under consideration, the mind often comes to a hasty and ill-supported conclusion. If we actually

come to know, or judge anything, we should then more clearly understand the detailed exposition of the grounds on which our minds arrived at the judgment of truth. On whatever subject, or in whatever way our limited understanding may be exercised, reason is the means by which we detect " ERRORS." Here, of course, the word " ERROR " is used in a general sense, but when we discuss how to avoid " ERRORS," such avoidance must not be understood to imply infallibility.

There are no rules, of course, which can prevent our making mistakes. The really best art of avoiding " ERRORS " is to observe carefully the mental activities concerned in knowing things. Keep the brain sound and well nourished so that it can sift abstract thoughts ; this will develop tenacity of memory and promptness in reproducing, training the memory of the ear, as well as the memory of the eye. The mind must be quite natural, and must move easily with equal inclination towards human mental actions, grouping the products of thought—namely, conception and judgment and reasoning in all the functions of

the intellect while the process of judging is proceeding.

It is difficult to trace the origin of "ERRORS," for all peoples and all persons of all ages have committed them.

If we reflect upon our experience, whether in war or peace, we shall find everywhere the riddles of the vicissitudes of joy and sadness, of love, of hatred. In all these varieties of life's struggles, we shall see that "ERRORS" are numerous even in this golden age.

It would be a serious "ERROR" if one were to overlook the method and means whereby one may be able to trace "ERRORS."

To find out any class of "ERRORS" and to describe them as they are actually, and to explain them in the form in which they require to be explained, it is necessary to observe the following rules :—

1. Skilfully collect the different facts, gradually developing a complete mental picture in order to make conception, memory, imagination, thought, reveal the simpler valuable mental ideas from the intricacies of the elaborate channels of thought.

2. Gradually investigate the science of the

terms, definitions and formulæ which signify the predominant mental energy, which create the meaning and reasons that produce the logical facts.

3. Determine the facts that separate the mental images which are governed from those mental states which are furnished on groundless notions.

4. Carefully observe and digest all well-reasoned conclusions based on valid grounds, and question the reasoning of the facts from the premises to conclusions. Then consider the processes of knowledge which embrace these facts, and accept the truths which are traceable only by our limited intellectual conceptions.

We realise then that our intellectual powers cannot grasp facts beyond our senses and our limited understanding.

THE VALUE OF OBSERVATION AND RESEARCH IN MEDICAL AND NATURAL SCIENCES

THE object of this chapter is to search briefly into the various branches of medical and natural sciences.

The present age is remarkable for its medical discoveries, particularly in anatomy. This reasonable boast of great growth in medical knowledge, chemical experiments and pathological preparations, should increase exertion and excite opinions and judgment of intending medical students.

The advances that have been made in the various branches of anatomical science during the present century are extraordinary almost beyond conception. In chemistry, in physiology, in hydraulics, in heat, in light, in electricity, discoveries are so extensive that every branch of science is affected by them. Our most able physiologists and chemists are obtaining increasing mastery over the forces of nature.

This knowledge of the forces of nature

which scientists have acquired by the aid of the microscope, gives an opportunity of examining the scope and nature of natural laws, physiological generalisations and organic beings with most striking proof of the wonderful harmony and adaptations which exists in the creation.

In research for the discovery of new truths we may best endeavour to understand the workings of nature by analysing the established work and following the progress of existing sciences.

This is our only hope of eventually obtaining the essence of all real knowledge.

It is not desired to present in this series an adequate account of the achievements of medical science. It would be impossible to give even a brief summary within the limits of our space of the various methods and results of research in this direction. We can but teach the student how to discover the important points to be remembered, and to formulate ideas as to the manner in which the medical questions could be mastered in the examination room.

All medical questions to be answered depend on observation and deduction.

To cultivate the faculty of observation, etc., must then be the duty of students who desire to make progress and pursuits. Equally important is the fact that to none is the study of logical reasoning more necessary than to the student of anatomy and medicine.

It will not be amiss to survey the science of medical education which brings to light two considerations of the utmost importance for a thorough understanding of the relations which exist between nature and the laws of medicine.

In the first place, it is impossible that any branch of medical education could be of public service, if observation and deduction were vaguely trained and taught.

In the second place, since science is based so largely on mathematical studies, skill in anatomy is only a preliminary skirmish if the study of mathematics is not congenial to the student.

The wit of poets and rhetoricians, the arguments of philosophers show only the

vaguest of ideas on this subject in their arts and refinements of civilisation.

It is medical science, *par excellence*, that enables men to possess a closer acquaintance with God and a fuller comprehension of nature's laws. In order to understand fully the vast domain in physical diagnosis the science of epidemiology, biology and mental physiology, it would be necessary to consider the remarks as to logic and mathematics outlined above. But postponing this, we must first deal at this stage of our subject with some consideration as to observation and research in medical science.

Medical students should draw their most valuable lesson from a continuous succession of corrected medical theories, I mean corrected by observation and research. Each lesson in observation should be minute, careful, extensive and free from vagueness.

Though students can judge best of the tendency of a disease by ascertaining the predominant changes of the viscera and their function, it is not possible, nor, perhaps, desirable, for all medical men to make chemical investigation of the secretions and

morbid products by means of the microscope.

But it is desirable for all medical students to make investigations into disease development from chronic cases, the face wasted, the complexion cachectic, and if the strumous character point to a tubercular disease, and if the mental character of the patient tells us something of his past habits and profession. Without the habit of correct observation, then, the power of medical science and art is wasted. Superficial observation in physical diagnosis and in natural order of vital changes, etc., counteracts in a measure the mischievous tendency into which the student is apt to fall.

We cannot scientifically trace the organic disease of the heart and the chronic diseases of the kidney, etc., by anatomical and pathological knowledge without the use of observation. Because when we come to the treatment of diseases, the great end and object of all the medical professional students is to observe the condition of the "Nervous System," "Conditions of Organs of Respiration and Circulation," "Condition of Digestive Organs," "Condition of Urinary Organs,"

"Conditions of Special Senses," and "Condition of Generative Organs."

But modern scholars of much wide and varied attainments are always open to the suspicion of being but superficially and vaguely acquainted with some of the laws of nature which they study and write.

The Author has no hesitation in asserting that knowledge so obtained of Nature's wondrous phenomena will not be superficial or vaguely obtained, but will be well founded, and this fundamental principle to be observed in examining the peculiarities in nature is now adopted by all the leading scientists in their researches with success. But our business at present is not to speak of the science which treats of the internal structure and physiology of the animal and human being, nor to form an accurate opinion upon subjects which lie outside the domain of reasoning, but simply to express those laws which were discovered by Christian men of research, and what appears to be the best course to follow in the present state of science.

The Author has stated that in regard to the laws of nature we lack understanding of the

common properties, the definite distinctions, which nature exhibits. This has been generally acknowledged by the most philosophical scientists of modern times.

The various branches of knowledge comprehended under the term " Natural Science" have now been considered as essential parts of medical training.

In the recent rapid development, the want of knowledge of the natural sciences is proof of their superiority as branches of a complete education. It will be admitted that we must have derived the elements of our civilisation through observing and arranging the facts of external nature. Amongst the nations of antiquity branches of natural sciences early attained a perfection, which has ever since rendered them the readiest means of mental culture, and this in spite of the fact that these nations were destitute of those instruments of research and study without which any modern scientist would consider perfection of his researches impossible.

The observation of facts, which must necessarily occupy so large a portion of the attention of students, depended upon their

unaided senses. They had no microscope, no telescope, no well-equipped laboratories, nor chemical re-agents.

The modern discipline of mind which constitutes the chemists, the botanist, anatomists, or the geologists, is essentially different from the ancient discipline of mind.

The ancient sciences afford a special and useful training for the mind, and led it to understand the multitudinous uses of science.

The modern sciences are more useful since they enter into our systems of education. We shall not enter here into any controversy concerning the reason of the comparative neglect of natural science in our national seats of learning, but could we not defend the study of natural sciences on the ground of their valuable methods of training the human mind, and the useful acquisition resulting from a direct application of scientific principles in the world's industries.

INFLUENCE OF SCIENCE AND METHOD OF STUDY IN MEDICINE AND ANATOMY

It is true that there are signs of a revival of interest in anatomy ; it may be that a paper or an essay with the above heading may be not inopportune just now. Whatever our method of modern science may be, at least there can be no doubt that the last century was distinguished for its progress in anatomical science almost beyond the depth and fulness of human conception. As to the future, we are convinced that in Ireland and England at least there are many scientific men equally distinguished in all branches of this science who will maintain its study. In fact, the inconceivable growth of scientific intelligence in anatomy enlarges the bounds of interest in this science, and has got rid of the devastating pests of obscurity and frivolity so as to encourage the close attention of the medical profession. It is safe to predict that the application of science to modern life, through a mediocre understanding of

anatomical science, will run a great risk of neglect.

There are certain modern methods in the learning of this science which are entirely useless and harmful, because only a smattering of the science is thereby acquired. We need not be dubbed incurable optimists if we assert that the time is at hand when we shall be rid of these methods of science in spite of the sickening monotony with which they are still inculcated at some of our seats of learning. If the great mass of a nation ceases to study for what is called by men "science," how are we to meet successfully the revival of interest in anatomy? Let us quote from a living example in the case of a well-known man of science, Sir Bertram C. A. Windle, who is one of the living authorities on the subject of medical science. . . . "The ordinary non-scientific person cannot be expected to embrace, and ought not to be expected to embrace, any scientific opinion until it may be asserted of that opinion that the genuine scientific world is fairly unanimous in giving its adherence to it. It may be claimed that this is the minimum of evidence

on which a doctrine should be received as coming with authority. Tried by this test, how very few of the theories of to-day would stand any chance of survival."

Space will not allow of long quotation from the medical books of the 13th Century. But one man there was, Henry de Mandeville, who lived in the 13th Century, whose works both in the technics and the diagnostics of surgery, were a revolution in medical science. Yet even among men of science, great as is the recent progress of their study, there is no reason to believe that notwithstanding greater depth and fulness of their modern resource, and their wider scientific knowledge, there are many more marked features in the direction of distracting students' attention from the usual curriculum the subject of modern theories. This is one initial defect in science both of past, and particularly present, writers, which the medical student of the future should avoid. It is the neglect of the would-be modern writer as regards the science of anatomy, which leads him to follow his own weakness which leads him to describe often a subject entirely out of the question.

There is another defect which should be noticed here; literature in medical science can be read, as every classical student knows well, whether in subject or in treatment, only if the writer has put the subject in the tersest and most effective manner without superfluous conundrums.

But what of medical writers, some of them of fine genius, who set themselves to express their ideas with modern clearness, yet run a great risk of leading the minds of students beyond the domain of their senses? I confess that to me, the great bulk of books on anatomy do a great deal more harm than the motive and purpose with which they were written. Yet consider what a comfort it would be to have an authentic council to decide which are the written books which contain no trivialities and nonsense so that the students may be able to purchase the ones where the matter is not plunged fathom deep in thought.

Many writers on medical education have impressed public opinion with an exalted idea that only men of superior mental gifts can

undertake the study of medicine and anatomy. If we examine the annals of medical history we will find there men already endowed with great and peculiar genius and extraordinary acquirements and accomplishments in their special studies.

In many respects studies in medical science require ability and fitness in order to balance the weight responsibility, human trials, duties and dangers which the profession embraces. When we consider what great students of medicine and anatomy have accomplished, and what they are hourly doing for the human body, we must prize the studies, and their active labours, because in these studies and labours lie a great amount of exertion, a degree of respect, an esteem of the wise, and approval of their talents, the knowledge of sciences, and the cultivation and improvements of intellectual faculties.

To all intents and purposes medical students should have a fair estimate of their own capacities and degree of exertion and nature of talents before entering into their noble profession.

The cardinal conditions which govern the

entrance of students into the medical studies are :—First, the progress made in the collegiate course, and second, passing the preliminary examinations in chemistry, botany, physics, literature, and languages. Therefore the profession, as a vocation for life, requires a full consideration and sufficient deliberation of all the advantages and disadvantages which accompany it.

It must be seen from a glance at the above summary survey, that medical curricula include a wide range of subjects.

It is obvious, then, that systematic courses of studies and of lectures in medicine have an enormous medical educational value. The principles underlying the mastering of the profession are observation, and diligence in reading.

There should be no difficulty in fixing the attention in the lecture room if the student desires to become thoroughly acquainted with the complicated symptoms of diseases. Whereas if the student's thoughts are engrossed by any other topic than the lecture, he will make no progress in medical science.

In order to become qualified for the treatment of diseases you must spend your days and nights ascertaining the correct nature and character of diseases, at the same time interpreting the language of their symptoms in note-books.

The courses in medicine, on larynxology, in surgery, in orthopædic surgery, nervous diseases, electro-therapeutics, diseases of children, skin diseases, semin-urinary diseases, otology, ophthalmia, mental diseases, history of medicine and dietetics, are allocated to definite and specific studies, and require a qualified mind to understand fully the administration of the laws of healing. The scientific investigation of diseases in clinical laboratories in our age has reached a very high order of development through the golden aid of the microscope.

Many medical students imagine that a large supply of apparatus in laboratories is the great desideratum of the present age. Nothing can be more groundless and unsupported with any pretence of reason than to allege that an adequate supply of apparatus

promotes proficiency in the acquisition of medical knowledge.

The medical professor who is master of the subject which has to be taught often anathematises his apparatus. This is an exception to the old proverb which says, "A good workman does not complain of his tools."

The influence of science and the student's intelligence are no doubt greatly helped by means of a supply of good apparatus, but we cannot say that the mere use of it disciplines the minds or trains us in the habit of fixing our thoughts firmly and keenly on any subject. It seems to me so very important that we should distinctly recognise the fact that eminent intellectual attainments are achieved only by a vigorous mind systematising and reasoning out the facts and laws of natural phenomena. Every country has its riches in mineral treasures. These minerals can be ours only on the above-mentioned conditions if we are to apply them practically to the needs of life.

Modern apparatus has unfolded to the senses of man a deeper glimpse into the

nature of these minerals, and the chemist, botanist and geologist have classified them for our comfort, happiness and civilisation. But who would ever dream that a student devoted to intellectual pursuits does well in the scientific use of the apparatus, without briefly recapitulating by putting before himself an outline of his investigations.

Concentration of mind on a subject, however, is capable of rendering better service in promoting intellectual excellence than the interested pursuits in a well-equipped laboratory.

Students must use their mental energy and observational powers every day in the study of clinical medicine, and they must be able to keep their thoughts on one line of development during the study in the clinical laboratories if they wish to possess fulness of knowledge, and become successful in the application of medical science to the profession which they have embraced.

The valuable mass of knowledge with reference to blood-counts, urine, and stomach contents, analyses, widal reactions, and observations on effusions, is acquired by close

intercourse with clinicons and thoroughness in the investigation of various problems in clinical medicine. A knowledge of Latin and Greek languages is desirable, and should therefore be acquired. We must investigate chemical questions which, once thoroughly understood, may be the means of removing many of the difficulties that are experienced by clinical students, and will also, in all probability, be a means of acquiring a knowledge of medicine and anatomy which should enable the students to make full use of their noble profession.

Two hours a day judiciously employed in reading will be sufficient to enable the student to ascertain the important maladies recorded for instructions.

It is by observation and diligence while in hospitals that students will speedily acquire a knowledge of the important features and peculiar natures of particular diseases. We should, while in hospital, record notes on suitable cards, investigate the phenomena of disease, interpret the signs, and compare the case with what we have read during our studies in hospitals.

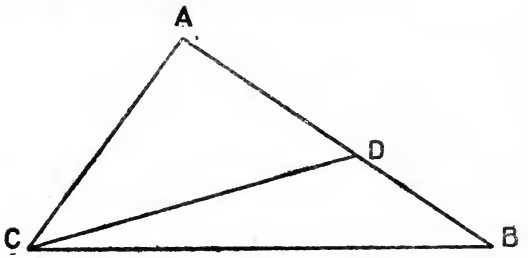
IMPLICIT AND EXPLICIT KNOWLEDGE IN BRANCHES OF MATHEMATICS

THE importance of the study of mathematics does not lie in the implicit knowledge of any branch of the science.

We should bear in mind that the technical knowledge of unfolding the propositions is not ascertained by analytical operations acquired by mechanical reasoning.

It seems to me that the process of thought generally employed in the solution of mathematical problems does not possess the slightest logical validity in regard to ultimate mathematical truth.

For the development of an intellectual mathematical mind a certain amount of progress is required in " explicit " knowledge of algebra, euclid, trigonometry, and the differential calculus. It will perhaps prevent misconception if the reader will study the following geometrical problem :—



A.B. is greater than A.C. to prove that $\angle A.C.B. > \angle A.B.C.$ cut off from A.B. A.D., = A.C.

Join C.D.

$\therefore$ $\triangle$ A.C.D. is isosoceles.

$\therefore$,, $\angle A.C.D. = \angle A.D.C.$

,, $\angle A.D.C. > \angle D.B.C.$

,, $\angle A.C.D. > \angle D.B.C.$

,, $\angle B.C.A. > \angle A.C.D.$

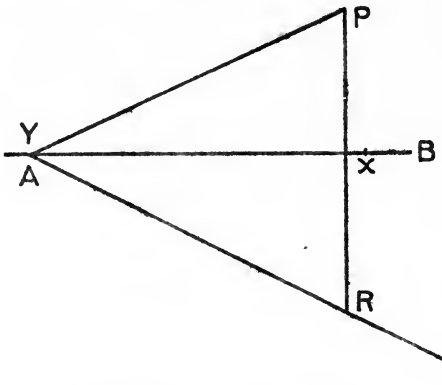
$\therefore$,, $\angle B.C.A. > \angle D.B.C.$ Answer.

To derive the fullest possible advantage from the above geometrical proposition it is necessary that the student should have some geometrical ideas of the properties of angles and some preliminary acquaintance with Euclid's elements.

In unfolding a proposition in any of Euclid's elements, a development of geometrical ideas from observation and movement is very important. A certain amount of progress by the student in the properties of lines, rectilineal figures and circles, and in the proportionality of straight lines, not forgetting, too, the study of "postulates" and "axioms," together with a continual working of riders and deductions may do

wonders in studying geometrical analysis, construction and proof.

Study the following construction and proof :

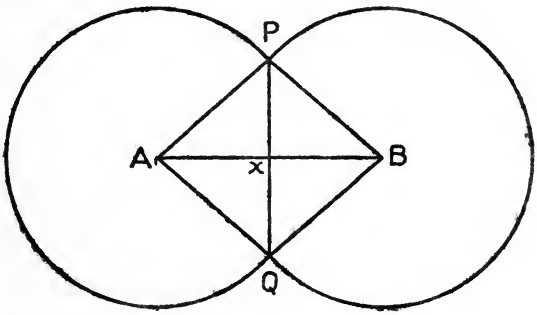


In $\triangle_s$ P.X.Y. and R.X.Y.
Y.X. is common.
P.X. = X.R.
$\therefore$ $\angle$P.X.Y. = $\angle$A.X.R. . . . Both Rt. $\triangle_s$
$\therefore$ $\triangle$ Y.X.P. = $\triangle$ Y.X.R. in all respects.
$\angle$P.Y.X. = $\angle$X.Y.R.
$\therefore$ $\angle$A.B. bisect $\angle$P.Y.Q. Answer.

We all know that the sum of the three angles of any right angled triangle is equal to two right angles, for if the vertex opposite the hypotenuse of any of these right angled triangles be connected with the centre of the

circum-circle the right-angled triangle will be resolved into two isosceles triangles, and since the angles at the base of an isosceles triangle are equal, it follows that the sum of the angles at the base of the right angled triangle is equal to the vertical. But how many students fail to understand the application of this purely geometrical work—*i.e.*, the problems concerning its application to areas of circles and triangles.

Let the student study the following and see if he understands the application of this solution :—



In the Angles.

A.P.Q. and P.Q.B.,

P.Q. is common.

A.P. = P.B. Radii of equal circles.

$\therefore$ A.Q. = Q.B. ,, ,, ,,

$\therefore$,, A.P.Q. = $\triangle$ P.B.Q.
$\therefore$,, $\underline{|A.P.X.} = \underline{|P.B.X.}$

IN THE ANGLES.
A.P.X. and B.P.X.,
P.X. is common to both.
$\underline{|A.P.X.} = \underline{|B.P.X.}$
$\therefore$ $\underline{\triangle}$ A.P.X. = $\underline{\triangle}$ B.P.X. in all respects.
$\therefore$ A.X. = X.B.
$\underline{|P.X.A.} = \underline{|P.X.B.}$
And also $\underline{|P.X.}$ is perp. to $\underline{A.B.}$

Indeed the Author has little hesitation in saying that if students occupied their time in the construction of regular polygons and solids and finding of a mean proportional between two given lines or the construction of a square they would be doing great mental good to themselves and would prove worthy benefactors of humanity and earn the respect and gratitude of posterity.

Have you ever given it a thought that the study of mathematics embraces "time" and "attention" if it is your desire to have a clear view of the boundless and exhaustless treasures in the field of material nature? Mathematical theory is the key to a large

section of the broad realm of science. It is a subject with which a student must acquaint himself if he wishes fully to appreciate the progress which modern times have made and are making in the pursuit of truth in scientific research.

A course of study in mathematics is undoubtedly greatly facilitated by a good knowledge of arithmetic. It is necessary to urge this consideration upon students though it may appear to many an obvious truism. Students of a certain class are too apt to imagine that nothing more is required for the acquisition of mathematical knowledge than a knowledge of formulae or committing to memory certain tables, and repeating them like a parrot. This idea, like a too large quantity of food taken into the stomach, does not support the life of man.

We must ponder on the mathematical problems with an active mind, leaving no fragments of time to lose sight of the applications which we are diligently labouring after. If we thus concentrate our energies upon the answer required, our concentrated

applications will give a zest to our mathematical studies.

It is the study of mathematics that brings before the student's mind all that his senses can perceive with regard to the properties of matter and forces which sustain the world in replenishing the earth and filling it with life and beauty.

It must be self-evident that the student who is ignorant of mathematics is ignorant of the laws by which God governs the universe. It is a shame for any student to live unacquainted with the inexhaustible varieties of laws in the organic world, and of properties and physical forces, on which the life of man himself is dependent. Through mathematics we can obtain knowledge of the laws which govern the relation of these forces, to matter, and to understand the properties of the existence of any form of matter. Its study is necessary for educational purposes and that a medical student should acquaint himself with a knowledge of pure and mixed mathematics is imperative.

The latter carries us into treasures of the material universe in which the former science becomes a means for investigating all those phenomena. The former science embraces in the abstract and, as already pointed out, includes the knowledge of those laws which are linked with ideas of space and number; in other words, quantities considered with reference to quantity alone. To attempt original investigation under the name of natural philosophy without application of pure mathematics is only an idle task. What would be the result of undertaking to explain the composition and resolution of forces to a class of students who have not learnt the properties of a parallelogram?

Therefore, to understand the deductions of mathematics, it is essential that a student should be acquainted with the principles of proportion as applied to triangles, and a tolerable knowledge of the fundamental theorem of the theory of equations.

While ancient testimonies and modern culture alike show the importance of the study of mathematics as a part of a liberal education, and of an education for the medical

profession in particular, the science of civilisation known to the nations of antiquity had its foundations in a knowledge of mathematics. The ancient leaders of mathematics discovered that the scientific conception of life was a genuine science, and that it would be known by number and measure. And, in a short period of time, the properties of elements were raised to the status of genuine science.

We freely admit that this science has undergone revolutions which have made it belong eminently to modern times. The sparks and gleams of intelligence of ancient mathematicians give the broad light to the progressive sciences which now enters into the scheme of a liberal education. The modern mathematicians who have had opportunity of examining the necessary truth of mathematical applications lost no time in cultivating deeper insight, applicable to the necessary services of common life. Therefore, the great men of former days, who combined the profoundest learning with general science, and the modern men who have given the cream of intellectual culture, affirm that a

study of mathematical science qualifies the mind for those intellectual energies which medical science requires.

The study of magnitudes of all kinds enables the student to sharpen his powers of investigation and the faculty of suggesting new combinations of the resources of his thought, and acquiring a correct estimate of the powers of his mind. We do not intend to vindicate the importance of studying " Spaces " and " Numbers," which are magnitudes because they may be brought to the comparison of equality or inequality, the former by the test of coincidence ; the latter by pairing off their units. Regarding judgments respecting magnitudes, reasoning is the mental operation. Thus if X is greater than Y, and Y greater than Z, X is greater than Z, is a proposition infallibly true, provided that X, Y and Z are magnitudes in the same sense.

The habit of applying the attention to the methods of the above procedure is the exercise of thought in reasoning. Surely it cannot be unimportant in the discipline of our reasoning powers.

The mental benefits derived from the study of mathematical investigations need only to be briefly glanced at. The elements of Euclid rank the highest place in a course of mathematics pursued for the sake of intellectual discipline. The laws of thought are developed more in pursuing the solving problems by symbolical algebra than by the arithmetrical procedure. The quantities, which have no limits of greatness or of smallness, are known by the science of the calculus. The knowledge of elliptic notions of the planets and the law of gravitation are determined by mathematical science. Thus mathematical reasoning is one of incessant mental activity.

" Whether we consider the nature of mathematical science or its results, it appears equally among the noblest objects of human pursuit and ambition.

" Arising as a work of intellectual creation from a few self-evident propositions on the nature of magnitude and numbers, it is generally formed into an instrument of pure reason of the most refined kind, applying to and illustrating all the phenomena of nature and art, and embracing the whole system of

the visible universe, and the same calculus measures and points out the application of labour, whether by animals or machines, determines the force of vapour and confines the power of the most explosive agents in the steam engine, regulates the forms and structures best fitted to move through the waves, ascertains the strength of the chain-bridge necessary to pass across arms of the ocean, fixes the principles of permanent foundations in the most rapid torrents and, leaving the earth filled with monuments of its power, ascends to the stars, measures and weighs the sun and the planets, and determines the laws of their motions, and can bring under its dominion those cometary masses that are, as it were, strangers to us, wanderers in the immensity of space, and applies data gained from contemplation of the sidereal heavens to measure and establish time and movement and magnitudes below." *

I think that this summary of mathematical knowledge is sufficient evidence to convince the student of its importance and advantage both to mind and scientific research.

* Sir Humphrey Davy from the Chair of the Royal Society.

SOME NOTES TAKEN FROM THE AUTHOR'S DIARY

" AMONG all the advantages which we get from reading there is not one more valuable than reasoning the matter of the subject with sound judgment."

" To prevent your forming an opinion of other people's folly and timidity, reflect upon your own delicate qualities of true modesty."

" The man that loves well is the man that thinks well."

" Love often seems to be uncontrolled because so many persons frequently mistake it for mere accidental affection."

" To love God means to take care of our mind and health and those of other persons."

" Exquisite feelings are most important means for an active mind."

" The improvement of mind is brought about by thinking, reading and moral purity."

" Many read in a way, but few really understand what they read."

" Positions in commercial businesses are often held by men of little learning."

" Fancy may become the mother of ignorance."

" Truth is always welcome to the men who love to speak it."

" Specialising in subjects may degenerate a student's mind into accomplishing nothing."

" The study of mathematics is much admired but very few excel in it."

" Words fortify our thoughts, yet the vocabulary of more than the average man is about 120 words."

" Among the best companions in life are books, because they are generally open-minded."

" Ideas of a cultivated mind are always limited, but that of an ignorant one seems unlimited."

" A study of Greek and Latin Classics enriches and beautifies the thoughts. No amount of money gives to man that is ignorant of the study their hidden treasures."

" Philanthropy is a beautiful channel for titles."

" Virtue in woman is obviously beautiful, but few recognise it as such."

" The widely prevalent weakness of human nature is our not knowing the fact."

" The well-intentioned snob has but little commonsense."

" Cantankerous fault-finders are heroes of revolutionary character."

" The fruits of a man's life are often crystalised in his features."

" A nation bleeds to death when the love for God is lost."

Printed in England by
Fox, Jones & Co., High Street, Oxford.